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ORIGINAL ESSAYS.

ART. XVIII.—*On the Antiseptic treatment of Small-pox.* By Assistant Surgeon L. C. NANNEY, H. M.'s 3rd Regiment P. L. I., Secunderabad.

AMONGST the many discoveries and improvements that have lately taken place in Medical Science, nothing is more striking than the large number of newly invented preparations which have been recommended as remedies for almost all diseases, and the introduction of which has caused material change in the treatment of several maladies. There is, however, I regret to say, a strong tendency to apply them in an empirical manner; the new remedy, which has been of marked benefit in one class of diseases, being too frequently applied without discrimination to all. The result of this naturally being a failure in some instances and, what is much worse, most detrimental and even fatal in others, a prejudice may thus arise against the use of a remedy which, if judiciously handled, might prove of incalculable benefit, when restricted to those diseases to which it is specially adapted. A course must therefore be steered between the two extremes, neither rejecting the results of recent discovery, nor too readily admitting them as specific in all complaints. To further this end, the experience of all who have had occasion to adopt any newly recommended plan of

treatment possesses a certain value, and should be recorded for the benefit of others.

With this end in view I subjoin a few remarks on the Antiseptic treatment of small-pox by Carbolic acid—a remedy which, of late, has won for itself considerable reputation, and to which, during a recent epidemic, I gave a fair trial. The proportions in which I applied the acid were, as one to eight of oil, with which I caused the papules, vesicles, and vesico-pustules, to be painted with a feather or brush, three or four times daily; the result being that, in those cases in which the treatment had been adopted from the earliest stages of the disease, it was arrested at the vesico-pustular and never reached the suppurative stage. Even in cases that, at the onset, shewed symptoms indicating a severe attack, the vesico-pustules scabbed over and dried up, and the sympathetic irritation was exceedingly trivial, nor did pitting ultimately supervene.

Of twenty-five cases which were under my immediate observation in tents provided for the purpose, eighteen proved successful, having been treated, from the earlier stages of the disease, by Carbolic acid; one died from pneumonia. In the six other cases the disease had gained considerable ground before admission, and only one proved successful. Of eighteen cases treated in the Lines by my dresser, none of which had been brought forward at the commencement of the disease, five died, in which the Carbolic acid had not been tried, and two died under treatment. The majority of these, however, having been kept concealed until the disease had reached the confluent stage, with accompanying delirium, afford no fair criterion as to the value of the remedy. The sensation experienced by the patient, on the application of the acid, is a slight burning which speedily passes off, allaying all irritation. The odour, which is a peculiar one, cannot be considered unpleasant, when contrasted with the fœtid exhalations proceeding from those suffering from small-pox,

I have found the patients willing and even anxious for the application of the remedy, after once experiencing the results. In the treatment of the disease during this epidemic, I had the advantage of contrasting former experiences during three previous epidemics, one in India, two in England, in which different modes of treatment were adopted by myself and other medical men.

On several occasions I found the application of Carron oil to be extremely soothing in allaying the irritation; it did not, however, check the disease in its onward progress, though affording great temporary relief, and thus obtaining valuable rest for the sufferers, so essential under the circumstances.

My experience during these four epidemics of this virulent malady, has led me to attach great importance to preventative measures, of which vaccination, though doubts have recently been thrown on its efficacy, stands in my opinion pre-eminent. I have observed that it either wholly averted the disease, or caused it to assume so modified a form, that the patients were able to go about their accustomed duties, shewing the slight constitutional disturbance that existed. I could wish that the advantages to be derived from vaccination were more universally credited, especially among the native population; as however the dislike to it is not readily overcome, and small-pox is a disease which is frequently epidemic in this country, and indeed, of late, in all parts of the world, it is of importance that the few remedies that exist should be widely made known and carefully tried.

I consider the Carbolic acid a most valuable antiseptic and deodorizer, and can add my testimony to the efficacy of this plan of treatment. I am of opinion that Carbolic acid might also prove valuable as a prophylactic in times of epidemics, and might be applied in various forms in other diseases of a similar character.

ART. XIX.—*Contributions to the Practice of Midwifery.* By P. S. MOOTOOSAWMY, F. O. S. L., Native Surgeon, Civil Dispensary, Manargoody, Tanjore District.

PLACENTA PRÆVIA.—Govindammall, æt. twenty, mother of three children, of whom two are living.

About ½ past 4 in the evening of the 15th March 1872, I was requested by a midwife of the town, a former pupil, to visit a female who was said to be in a dying state from flooding. As the woman lived not far from the Dispensary I saw her at once, and found her on the floor of a low miserable hut, without any bedding, and lying in a pool of blood, with ashes plentifully strewn about her. She was

perfectly insensible and in a state of extreme exhaustion, indicated by a cold clammy skin and imperceptible pulse.

On examination I found the vagina filled with clotted blood, on removal of which I ascertained that all but a small portion of the os had placenta adhering to it; that the os was dilated to the diameter of a rupee, and that the head was presenting. As the woman was in such an exhausted condition I administered arrack with broth, first plugging the vagina and applying a binder to the abdomen, and wet cloths to the vulva. The broth and arrack were repeated at short intervals, and re-action took place in about an hour. The pulse returned and the skin became warm; but consciousness was not restored. I removed the vaginal plugs, and found that the os uteri was well dilated, and the placenta almost entirely detached. I ruptured the membranes, and extracted a dead female fœtus by means of the short forceps. Cold douche to the hypogastrium, and grasping and kneading the uterus ensured contraction of the organ, and expulsion of the placenta. A compress was then applied, and the binder re-adjusted.

The woman did not recover her consciousness until the afternoon of the third day, when some symptoms of uterine inflammation presented themselves, and were subdued by treatment.

The woman made a rapid recovery, and left her room on the 17th day after her confinement.

Remarks.—There are several points of interest in this case to which attention might be drawn, and which might, perhaps, obtain for it a place in the columns of the *Madras Medical Journal.*

The first circumstance worthy of notice is the rapid recovery of the patient from the extreme state of exhaustion to which she had been reduced by the hæmorrhage. When she was first seen by me she was cold and pulseless, but in an hour after the administration of stimulants reaction was established and uterine action had taken place to the extent of dilating the os uteri and detaching the placenta, at least that portion of it in the cervical zone below what Dr. Barnes designates, the "Lower Polar Circle." Although the patient did not recover her consciousness quickly, she rallied wonderfully, and, notwithstanding the supervention of some untoward symptoms, she was able to leave her hut in little more than a fortnight.

The next important feature in the case is, I think, the absence of hæmorrhage after reaction had set in, a circumstance attributable, no doubt, to the contraction of the uterus and detachment of the placenta, which the unaided efforts of nature had effected. If, as some suppose, the source of the hæmorrhage is placental, or for the most part placental, it is difficult to understand how the detachment of this organ, consequent on reaction, was not followed by hæmorrhage; but if we believe, with Dr. Barnes, that "the great hæmostatic agent is contraction of the uterine fibre," then it becomes very clear that the contractile action of the uterus which disengaged the placenta from its walls, also closed the utero-placental vessels, and checked the flooding. The detachment of the placenta again favoured dilatation of the os, and the rupture of the membranes tended to increase uterine contraction.

The case of this poor woman may be adduced as an example of the reckless disregard of life brought about by the peculiar religious belief of the poorer and uneducated classes of natives. Enquiry into the history of the patient elicited the fact that about a month previously she was suddenly seized by flooding which soon ceased. This was ascribed to the female having in some way incurred the displeasure of a particular god, whose wrath was appeased by certain incantations, charms and offerings, which were had recourse to. Ashes were on that occasion, as on the present, plentifully strewn over her as part of the propitiatory ceremony, and she was made to drink a mixture of ashes and water. The cessation of the hæmorrhage was attributed to the acceptance of the offerings made, and all went well for a time. On the next occasion of the return of the flooding, the same means for its arrest were employed, but, unfortunately, in the opinion of the patient's friends, they failed to appease the wrath of the deity, and the woman was left to die.

Sixteen hours after she had been given up by the individual who performed the ceremonies, the services of a midwife were sought. None but the very poorest of the natives of certain castes will seek admission into hospital, when there is reason to fear a fatal termination to their illness, for when death occurs, their caste prejudices prevent their friends from conveying the corpse to their home prior to burial; and it is considered degrading to be buried from a public hospital.

ART. XX.—*Fibro-cystic tumour. Removal by operation.* By Assistant Surgeon F. M. RICKARD, H. M.'s 25th Regt., M. N. I.

Perumaye, female, aged 42, Kolah caste, was admitted into hospital, on the 26th April 1872, with the following history of her case. Four years ago she noticed a small swelling in the right breast. At this period the catamenia ceased and she suffered from slight constitutional disturbance for a short time. The swelling gradually increased, until she was prompted to seek medical advice. This she did and came to the Garrison Hospital in April 1871. The tumour had then attained a large size and extirpation was had recourse to.

The operation was performed on 30th April 1871, by Assistant Surgeon Smith, who was then acting for Doctor Fletcher the Garrison Surgeon.

I find the following entry in the hospital records.

Perumaye aged 42, female, Hindoo. Multilocular cystic tumour of right breast, was removed by Doctor Smith on 30th Apr. 1871. Weight 3lbs. 8 ozs.

The tumour recommenced growing about 8 months ago, and has increased very rapidly. Her health is much impaired and she suffers considerable pain and inconvenience; loss of appetite, restless nights &c.

Present condition with description of the tumour.

Dimension Right Side.

From upper part of spine to top of sternum 20 inches.

From middle of spine to ensiform cartilage 23 inches.

Circumferential measurement of tumour from anterior superior angle of right scapula to sternal end of right clavicle 23½ inches.

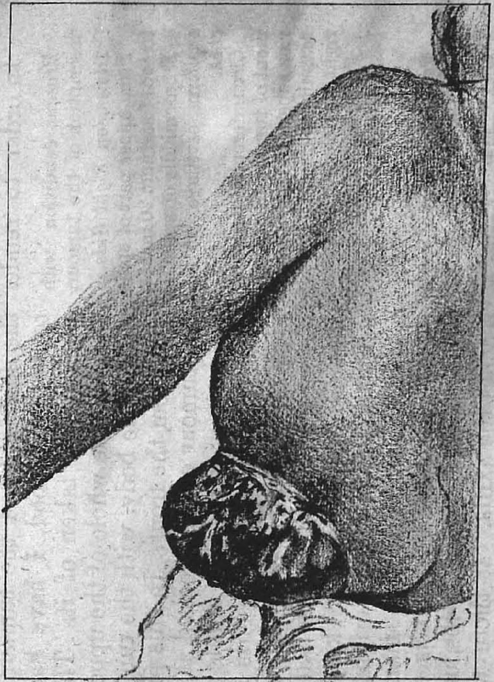
From top of tumour to base, 11 inches.

Left Side.

From upper part of spine to top of sternum 13½ inches

From middle of spine to ensiform cartilage 15½ inches.

In order to render the description of the tumour easier to be understood, I have had two photographs taken of it. The first showing the whole of the upper portion of the body, with the tumour as seen from the front. In this picture, the tumour can be looked at, as in comparison with the trunk. The other photograph represents a side view of the tumour with the fungus-like projection which resulted from the giving way of the skin. The mass appears to take its origin, from a small portion of the mammary gland which was left unexcised, and grows upwards, on the ribs, until it reaches the axilla. It there widens laterally, filling up the axillary space, and forcing the arm upwards and outwards. The deformity is more apparent in front than



LITHOGRAPHED BY ALEX: BARREN,
ORIENTAL LITHOGRAPHIC PRESS MADRAS 1872.

behind, by reason of the resistance made against the growth of the tumour, by the scapula bone and latissimus-dorsi and other muscles. Anteriorly the tumour is bound down very firmly by the pectorales major and minor and the fascia of the thoracic region. To the touch, it feels hard, smooth, and regular. Near the base, at the outer side, is a large fungus-like projection, about the size of the clenched fist, which was caused by the skin giving way about a week since, when there was considerable hæmorrhage. The consent of the woman having been obtained, I determined to operate and relieve her of the enormous mass.

The Operation.

On the 2nd Instant, assisted by Doctor Long, Doctor Ritchie, who also kindly administered chloroform, and Assistant Surgeon Harvey, who was then in the station, I proceeded to operate. The arm being drawn upwards, to above the level of the shoulder, and slightly backwards, I made one straight incision, from the centre of the axilla, down the outside border of the tumour to the fungus-like projection, which I encircled with two sweeps of the knife, at the same time being careful to remove enough of the unhealthy skin around the opening, to a width of an inch or more. I then completed the incisions by running another small one, about four inches long, at right angles to the commencement of my first cut and parallel to the clavicle. This finished the incisions. I then reflected back the flaps and endeavoured to get my hand between the tumour and the ribs, but was unable to do so, from the firm attachments that existed between them. Several layers of fibrous tissue had to be cut through before I could get to the ribs. When the latter were once reached the tumour was quickly dissected away from them. The great difficulty that then presented itself, was, to get the hand above the summit of the tumour, and thus detach it from the axillary space. After thoroughly dividing the pectorales major and minor, and cutting through numerous layers of dense fibrous looking tissue, I managed to get my hand above the tumour, and then partly by force and partly by the aid of the knife, the whole mass was turned out of the axilla. Little then remained, but to dissect the tumour away from the latissimus-dorsi, to which it was intimately adherent, by strong fascia and fibrous bands Only one artery required ligature, viz, the long thoracic. There was a good deal of venous

hæmorrhage, which quickly subsided, on the bared surfaces being sponged with carbolic acid and oil. The flaps were then adjusted, and kept "in situ" with silver wire sutures, and the side dressed with tow soaked in Carbolic acid and oil. There was considerable difficulty in restoring the patient after the operation, and for some hours after the pulse was very low, requiring constant care and watching, and the frequent administration of stimulants. The operation lasted 40 minutes, 7 drachms of chloroform were used, by means of Bloxam's patent chloroform bottle. Not a single bad symptom presented itself and the patient made a rapid recovery. The flaps joined well on the exposed surface of the walls of the chest and healthy pus was freely formed. The patient was discharged from Hospital well, on the 2nd of June, just one month from the date of the operation.

Remarks.—The tumour on removal weighed 6 lbs. and when cut through presented a fibro-cystic appearance, but unfortunately no microscope was available, to form a definite opinion as to its real character. The real difficulty in the operation was found when it was necessary to get above the summit of the tumour. In fact, as the whole of the axilla was filled with the mass, and that mass firmly wedged into the space, by continual increasing force, caused by the growing of the tumour from below upwards, it was impossible to attain the object, without dividing the two pectorales. And even after division of these two muscles, great force, and some use of the knife was requisite, to tear away the mass from the subclavius muscle. After this was effected, the axillary artery was plainly seen beating, through a small thickness only of cellular tissue. A strong pedicle of thick fibrous tissue of nearly an inch in width and about ¼ inch in thickness, extended from the seat of the former operation into the substance of the tumour and thus retained it in its place, inferiorly. This pedicle had to be divided before the hand could be passed between the tumour and the ribs, at the beginning of the operation. In mentioning the instrument used for the administration of chloroform, I would add my testimony to the great value of Mr. Bloxam's chloroform bottle. It is exceedingly simple and so graduated, that the quantity consumed can be read off at any time. From the small quantity of the anæsthetic used viz., ʒ vii, it will be seen, that there cannot possibly be any waste, when Mr. Bloxam's bottle is used. In con-

clusion, I would beg to state, that the Municipal Commissioners of Cannanore came forward with great generosity and kindness of heart, and placed the sum of Rupees twenty in my hands, to be expended in supplying the patient with comforts and necessaries, which the poor woman was greatly in need of, as she was a pauper, a class of patients for whom no provision is made by the Government in the Garrison Hospital.

Compound fracture of left Femur, from Gun-shot wound.

Raloo, male, aged 32, was admitted into the Garrison Hospital, on the morning of the 15th May, having been brought a distance of twelve miles, in a muncheel.

The following is the account that he gives of the accident. He was returning to his house about two o'clock in the morning, when about 40 yards from him, a man was coming in an opposite direction and obliquely, carrying a gun, with the muzzle to the front. He says that suddenly he felt a severe shock and great pain in his left thigh and at the same time heard the explosion of the other man's gun. On being hit he fell to the ground, but the other man ran away. He lay on the spot where he fell about an hour, until he was picked up by some people passing who removed him to his house.

On examination, the femur was found to be completely severed, about an inch below the great trochanter, and the bone much comminuted. There was a round wound where the bullet entered, about the size of a rupee in diameter, with the muscular substance bulging out of it.

No wound of exit could be discovered. The wound of entrance, was about one inch below the point of the great trochanter, and directly inwards. The probe was used carefully, but nothing could be detected, but broken up bone. No bullet could be felt. There was no hæmorrhage from the wound and the effects of the shock had all passed off. The injured limb was carefully placed on a double inclined plane iron-splint and the wound dressed with carbolic acid and oil.

20*th.*—Since his admission, the patient has been carefully kept quiet and in the same position. All swelling of the limb has gone, and the wound of entrance looks healthy, laudable pus being freely formed and evacuated. To-day, on again carefully examining the whole limb, a small round

hole was found, about the size of a 4-anna piece over the tuber-ischii of the same side. This hole must have formed since his admission, as he was carefully examined when brought to hospital, and nothing of the kind then existed. From this wound healthy pus is discharged. The latter wound to be dressed like the former.

25th.—On this date, two or three small pieces of bone came away from the wound of entrance, their structure being cancellous. Both wounds looking healthy.

June 12th.—Up to date, the patient has continued in the same position. Bed sores have been carefully avoided, by frequently bathing the back, loins, and buttocks with weak brandy and water. No pieces of bone passed away during the month, and union is firmly established. The patient's health continues good and his appetite remains unimpaired.

July 13th.—A piece of bone, half an inch in length, has come away, and the sore over tuber-ischii has healed. The wound of entrance continues open.

August 10th.—The splint was removed this morning; there is shortening of the limb about two inches and swelling over seat of fracture due to callus. External wound still open, no pieces of bone have come away since last report.

31st.—External wound is closing, discharge very slight. Patient insists on returning to his house and his friends have come for that purpose. I have desired him to return and show himself. General health perfectly good. Discharged.

ART. XXI.—GENERAL HOSPITAL REPORTS. *A Case of Suppression of Urine,* under the care of SURGEON-MAJOR J. L. PAUL, M. D., Surgeon to the General Hospital. Reported by E. F. Brockman, Resident Assistant-Surgeon, General Hospital.

Mooneappen, a ryot, aged sixty years was admitted into the General Hospital on the 28th May last with the statement that he was unable to pass his urine. In the hypogastric region there was an apparent distension, and without a careful examination in the out-patients' room being made, and because of the urgency of the case, the patient was admitted without any loss of time into the Surgical

Division. On a closer inspection of the case in the ward the fulness of the hypogastrium was not visible, and to strengthen the supposition that none of the urinary secretion was collected in the bladder, a large catheter was passed, but no urine drawn off. On enquiry the patient stated that he had scarcely passed any urine during the preceding seven days; and that what little was voided caused him to strain much. He denied having ever suffered from gonorrhœa; he stated that he was a temperate man, and that he had always enjoyed good health with the exception of an illness four years before similar in character to that from which he is now suffering. Native medical treatment at that time relieved him, but on this occasion it failed; on the occasion referred to the patient passed a few small calculi. On admission the eyelids are slightly puffed; he complains of a pain in the loins, and in the anterior wall of the abdomen in each inguinal region; pulse is quiet; he looks anxious, but is not drowsy; is rather slow in comprehending questions put to him, and in making replies. As above narrated, a large-sized gum-elastic catheter was passed but without removing any urine from the bladder.

Loins to be dry cupped. Warm bath.
To drink large quantities of barley water.

29*th May*, 6 A.M.—After cupping the loins yesterday, patient passed a few drops of urine. Eight leeches to renal regions. Barley water and imperial drink.

Temp. 100·8. Pulse 100. Resp. 30.

5 P. M.—Is in much the same state. Has drunk during the day two pints of barley water and two pints of Imperial drink. Took his food. Bowels acted once normally. Soon after the application of the leeches, patient passed about two drachms of urine. Heart's sounds equal in duration. Breathing sounds normal.

Temp. 100°8. Pulse 100. Resp. 32.
Haust. salin. purg. ℥iv. statim.

30*th May*, 6 A.M.—Bowels acted four times, but no urine was passed. The patient has passed a restless night and complains of a feeling of tightness which extends from the lumbar regions anteriorly to the fore part of the abdomen. During the night drank two pints of fluid. On testing the very small quantity of urine passed yesterday with heat and nitric acid, albumen was precipitated to the extent of one-

fourth part of the quantity passed. Complains of feeling drowsy. Skin is dry.

Temp. 99°. Pulse 94. Resp. 31,
Hot air bath.
Imperial drink O iii.
Barley water O iii.

℞ Potas. Acetatis gr. xv.
Vin. Colchici ♏ xv.
Infus. Digitalis ℥ ss.
Aquæ ℥ ss.
Quartâ quâque horâ.

5 P. M.—Bowels acted twice. No urine passed during the day. The hot air bath caused profuse diaphoresis. Is inclined to doze.

Cont. treatment.
Temp. 101°. Pulse 92. Resp. 33.

31*st May,* 6 A. M.—During the night passed urine six times, amounting in all to twenty-four ounces. Bowels have not acted. Urine is pale and cloudy, sp. gr. 1008, having an acid reaction and holding albumen in suspension. Feels much relieved. The feeling of tightness and distension has passed off.

Temp. 98°. Pulse 92. Resp. 30.
Cont. treatment.

5 P. M.—Total urine passed since 6 A. M, amounts to forty-one ounces. Patient is feeling more comfortable.

Cont. treatment.

6*th June* 6 A. M.—Bowels acted frequently during the night, the increased action being caused in all probability by the potash salts in the mixture and in the imperial drink. Urine has a sp. gr. of 1012, and suspends no albumen. Describes himself as being quite well.

7*th June.*—Absconded from hospital.

A Case of Vesical Calculus. (Phosphatic.)

Appavoo, a washerman by trade, aged sixteen, and residing at Washermanpettah, was admitted into the Elgin ward of the General Hospital on the 7th July 1872 under

the case of Surgeon-Major J. L. Paul, M.D., with the following symptoms. On attempting to micturate he experiences a scalding sensation, with an inclination to evacuate the bladder frequently. The urine is said to escape in small quantities and sometimes to pass by drops merely. He complains of hypogastric pains which are increased when walking or while engaged in the performance of the duties of his calling. The pain at the extremity of the penis is reported by the patient to be present as well as the occasional passage of blood with the urine. On admission, a No. 6 silver catheter was passed and the presence of a calculus in the bladder detected. On examination of the urine it was found to be slightly acid, and to contain a large quantity of mucus and pus corpuscles, and to have a specific gravity of 1010. Was ordered the following :—

℞ Ext. Opii. gr. ii.
ft. pil. Horâ somni sumend.

℞ Sodæ Bicarb. gr. xv.
Tinct. Hyoscyami. ʒ ss.
Aquæ ℥ iss.
ft. mist. ter in die sumend.

July 11*th.*—After dilating the urethra by silver catheters Nos. 8, 10 and 12, Sir Henry Thompson's small lithotrite was introduced while the patient was under the influence of chloroform, but all attempts at seizing the stone proved futile.

Rep. Pil. Opii. gr. ii.

July 13*th.*—Patient complains very much of pain during micturition. The pain is said to extend along the urethral canal, the perinæum and upwards along the spermatic cords.

℞ Enema Opii. Stat.

July 16*th.*—The pain continues to a greater or less degree since last date. The lithotrite was introduced, the stone was seized, and was found to measure about 1¼ inch in diameter. This was crushed, and two of the fragments were subsequently seized and crushed. The debris found in the bite of the instrument on being submitted to nitric acid and heat was found to be readily dissolved by these means.

Morphiæ gr. ¼, in solution.
to be administered hypodermically.

18*th July.*—Suffers from severe pain. Urine contains a large deposit of mucus with some gritty particles. Some febrile action present. Pulse small and quick. Tongue coated with a white fur. Morphia hypodermically.

℞ Acid. nitrici dil. ♏ xv.
Inf. Gentianæ ℥ i
ter in die.

20*th July.*—Lithotrite again introduced, and three fragments were crushed.

Cont. treatment.

23*rd July.*—The lithotrite was introduced this day and two small pieces were crushed. A third large mass was felt, but could not be caught in the grip of the instrument.

Rep. mist.
Add. Tinct. Hyoscy. ʒ i.

28*th July.*—After dilatation of the urethra by a No. 12 catheter the lithotrite was once more introduced, but on account of the restlessness of the patient, the stone could not be seized. A slight hæmorrhage, which soon ceased, followed the withdrawal of the instrument.

1*st August.*—For the last two days has had febrile paroxysms and since yesterday diarrhœa has come on. For the former Tinct. Aconiti was ordered, and for the latter the Pulv. Cretæ Aromaticus cum Opio.

August 22*nd.*—Since the last date the patient has gradually improved, the febrile action has subsided, the diarrhœa has ceased, and beyond the symptoms caused by the presence of the foreign body in the bladder he has comparatively speaking been doing well. This morning the lower bowels having been emptied by a large warm-water enema and the patient having been anæsthetised by chloroform, the lateral cutting operation for removal of the stone was performed. The perinæum was deep and gave rise to a little difficulty in the detection of the groove of the staff. The stone was extracted by forceps. An elastic tube having been introduced into the bladder through the wound the patient was put to bed. The stone was almond shaped having one extremity fractured. The external surface is rough and has the appearance of a phosphatic calculus. On breaking it across the middle by means of a lithotrite, a small hard rough nucleus which resists the

force of the instrument stands out and presents the physical appearances of an oxalate of lime formation. The calculus weighed in its broken state ʒ vii gr. xiv.

September 23rd.—Has done well since the operation; passed urine by the urethra for the first time on the 30th ultimo. Since this date the wound has been gradually contracting and has now completely healed up. Is discharged from hospital.

Art. XXII.—*Notes on the Blood Sacrifices of the Hindoos.*

(Communicated by Inspector General, I. M. D.)

Woon District. By P. Chamarett, Esq, Civil Surgeon, Yeotmahl.

It lies between 19° 40′ and 20° 45′ North latitude and 77° 28′ and 79° 33′ East longitude.

It is divided into Yeotmahl, Darwa and Woon talooks.

The district consists of plains, plateaux and ranges of hills.

The principal rivers are the Wurda and Paynegunga with their affluents.

The population, 340,426 souls, principally consists of Brahmins, Hindoos, Brinjaras, Gonds and low castes.

The religion of the several castes is the same as prevails elsewhere. All the Hindoos, of every denomination, are worshippers of Mahdeo. The language of the District is Mahratta.

In the Woon talook, Telugu is the vernacular.

At present human blood sacrifice is never practised, but it is said that before the British rule some people used to offer human sacrifice when they knew that in a certain place great treasure was buried. Now-a-days, buffaloes, sheep, goats and fowls, are often sacrificed to several deities, both males and females.

A buffalo is annually sacrificed in every village by the Headman on the Dussera festival to a female deity called "Gaodavee". The buffalo is first brought to the headman's house, when he worships him with flowers, &c., he then takes a sword in his hand and strikes it on the muzzle of the animal and allows the blood to fall on the ground to appease, as he thinks, the wrath of the goddess Goadavee. The buffalo is subsequently led to every house in the village, when the owner pays something to the leaders of the animal. In the evening the beast's throat is cut on the south boundary of

the village and a drop of its blood is applied to the forehead of the headman, potail, deshpandia and deshmooks.

Blood sacrifice is never practised among Brahmins.

Hindoos often offer these sacrifices when small-pox, measles and other diseases prevail. People often go out of the village where, at a distance under some tree, there are a few stones covered with "Sindoor" or red lead "Seetaladavee." There they worship, prepare food for the day, offer it to the deity and partake of some as a *prasad* (favor). These people do not require any priests; they perform the ceremonies themselves.

Earth, fire and water of some sacred rivers are worshipped. Fire is supposed to be the principal deity by Brahmins. When a Brahmin lad is invested with the sacred thread his principal duty is to worship fire; he is ordained to keep it during the whole of his bachelorhood. When he gets married he does the same thing. By others of the Hindoo community fire is worshipped at the Holee festival. It is supposed to be a demoness in whose honor fire is worshipped at this feast.

Trees are worshipped by almost all Hindoos under the pretext that various deities live thereabout. The following are the principal plants and trees; Toolshe, aola, peepul, banian, oomber, rui &c.

Serpents are worshipped by the Hindoos on the day called Nag or Naggur punchun. It is so named because it is supposed that on that day a husbandman was ploughing his field and in the course of his work he hurt a snake of the best sort; enraged at the insolence of him, the snake destroyed his whole family except one daughter, who was at her husband's house and used to worship snakes. The snake told her what he had done, and said that as the snake is quite satisfied at her kindness, he has saved her and further promised that whosoever worships snakes on that day will be ensured protection against their bites. A serpent called Kali, said to have been slain by Krishna, is also worshipped at this festival. Within the last 25 years a new religion is being introduced in the province by the name of "Kalanki." The professors of this religion do not hesitate to do any thing prohibited by other Hindoos. Further particulars of this new religion will be furnished.

In this District, Brinjaras and Gonds abound, the former reside in "Tandas" apart from villages, and the latter resort to forests and ranges of hills. Of late they are much more

docile, much inclined to take service under Europeans, and yield in a considerable degree to the prejudices of the Hindoo.

The Brinjaris, as a class, are criminally disposed; all violent crime is traceable to them, and they reside for the most part separate from the other people, in small communities subject to the patriarchal rule of the Naik who is the most influential member of the "Tanda."

The habits of every resident in the Tanda are well known to this man, and without his permission no stranger can join the clan. Female infanticide was at one time considered a characteristic of the Brinjaris, but no proof or instance has ever come to notice.

The general report is, that a woman accused of adultery is put to death; this also is without proof.

There are in this district upwards of 300 Tandas, each containing from 10 to 50 families, or 28,395 souls. Although they conform to the Hindoo religion they differ much in social position. They rarely mix with the population, are bold and fond of sport, no festival, birth, marriage or death can take place without excessive indulgence in "Daroo and Tumbakoo," and their daughters are not married until they arrive to years of puberty.

There are two distinct tribes, *Mahtoories* and *Charruns*, also *Dharees* or mendicants; the latter observe circumcision.

It is supposed that the Brinjaris came into the Deccan as grain-carriers during the Mahomedan invasion. Their origin is not well known, they appear to have more resemblance to the Mahrattas than to any other nation, and in this District they have become the objects of suspicion to the Police.

The men differ very little in their costume from other castes, but the dress of the women is entirely different, coarse ornaments of ivory and pewter to their extremities and colored embroidered skirts and jackets; they are active, and endure great hardship and fatigue.

The *Mahtoories* were Brahmins who are said to have come from Muttra in Hindoostan as grain-carriers with Aurungzebe's force during the Deccan invasion. They wear the sacred thread, eat no animal food and drink no spirits. Should a male die after the investiture of the sacred thread, and the married woman die, cremation is observed. All others are buried.

The *Charruns* or Graziers have principally their origin, it is said, from the *Rhattore* of Joadpoor and came into the

Deccan with Asaph in January 1630 during his predatory incursion.

The *Dharees* were Hindoos of old; they are said to be the descendants of one Mholanur, but their proper origin is disputed; they worship the Deo Sarasatta Gajoo, and Gandha. They generally offer a he-goat as sacrifice. Many of the Dharries observe implicitly the Mahomedan persuasion and offer sacrifices to Peers and solicit Cazees and Fakeers to read prayers during the ceremonial rites of marriages, births and deaths. Among the Brinjaris, polygamy is permitted. Widowers and widows are permitted to re-marry.

The following is a history of the Gond's Province, being a translation of a chronicle compiled by the Sur Mookadum of Woon, named Neelkunt Lutchmun:—

"In ancient times the province was recognized by the name of "Zadeeprant" or the country covered with forests, and about 300 Fuslee was governed by the Manays. Afterwards the Gonds became powerful, conquered the Manays and ruled the country for 800 years; hence it was called Gondwanna or the Gond's forests, and by this name it is still known."

This country is very large and covered with dense forests. Its boundaries are on the North Chindwada, Bhundara and Oodsa Provinces; on the South, Budrachellum hills and Godavery river; on the East, Ootkul or Wadya Juggernauth's province; on the West, the boundary is irregular, it goes from Ootnoor by the hills of Makala and Mahore and thence by the villages of Sindkeid, Sayat Dongurkurda, Kalamb to Mooltap.

The inhabitants of the country were in a barbarous condition until the Bhoslays' conquest, under whom they improved and remained in the same state until the possession of the country by the British.

The history of the Gond Kings embraces from the commencement of the 4th Fuslee century to the 11th. About 300 Fuslee, the Gonds became powerful in the Zadaprant. They conquered the Manays and established the seat of their power at Shirpoor in Joorgaum Pergana. While there they built a fort on the hill of Manick since called Maorikgud which is still in existence.

One Balalsha assumed the throne and built a fort 8 miles to the east of the Wurda and Pynegunga rivers. He resided at a place called Bahalpoor and made it the seat of his Government.

There was another Balalsha surnamed Khand Kya from his body being covered with leprosy: to be relieved of this disease he used much medicine with ill effect. One day he went hunting in the jungles and becoming very thirsty, his servants, after a long search, found a small spring of water with which they filled a drinking vessel and presented it to the king. He, according to custom washed his face and drank it. Next morning, when he rose from his bed, he found that the eruptions on the face had disappeared. The queen was much astonished and enquired into the matter; she was informed of what had happened. The king and queen proceeded to the spot, and the former, after bathing in the pool, was cured of his complaint. The place where the water was found was called Achulnath, or the immoveable god. The king erected a temple over this pool and began to build a fort which was completed by his grandson. This town was previously inhabited by king Chundrasawmy and afterwards deserted, and was named Chundrapoor after the former king. It is situated between the Wurda and Surputta rivers; it has four gates, three windows and fifty-two bastions.

The Gonds are African featured, black woolly hair, prominent cheek bones, flat nose, thick lips and large ears; they are scantily attired. The females are fond of ornaments. Although very intemperate in their habits, they are hard-working, candid and simple-minded, and as a body not criminally disposed.

Pen, Kodial, Bhussan, Sanalk, Mingal, Durga, Passipen, Chundapen.

Some Gonds worship seven gods or deos; others, six, five, and four. Their principal god is Deo or Bhimpen or Bheimsen.

Gondi, Gazeti, Ratluk, Naikude, Madia, Muasi, Maria, Kuri, Batran, Parja, Koolam, Pardhan.

There are 12 classes of Gonds, they eat with each other but do not intermarry.

About monsoon time they perform a great ceremony before tillage and sowing; they have also rejoicing and ceremony after reaping. Their ceremonies consist of putting up stones under sheds or trees, besmeared with sindoor or red lead, and offer sacrifices of cereals, ghee, goor, fowls, sheep, goats &c.; but in deference to the Kunbees and Hindoos they do not slaughter cows or bulls, although their caste

and religion permit such sacrifice. Their rites are performed under moah, teak, roey, barhulda, saj, mango and ain trees. They also worship snakes like Hindoos. They sometimes burn, and at other times bury their dead, and at that spot they erect a Chabootra, have wooden posts in the four corners and a stone in the centre line, smeared with red lead.

The Koolams reside in about 12 villages along the banks of the Wurda. Their principal deity is Bhassen. They marry when young and have only one wife. They eat bulls, cows and buffaloes. Their dialect differs from the Gonds, they use many Telugu and Tamil words. A vocabulary of words was furnished in 1869.

The Purdans are an inferior class of Gonds and generally perform the menial works of the village; they worship several of the Gond idols The higher Purdhans are priests, Bhats, Poojaries &c., to the Gonds, and the lower Purdhans act as musicians.

Booldanah District. By A. R. MENASSE, Esq., Civil Surgeon, Booldana.

Who are the "Karhada" Brahmins?

Karhada Brahmins are the "Konknust" brahmins, aborigines from Konkun, that part of the Bombay Presidency which lies to the south of Bombay, below the Ghats, containing the talooks of Rutnagherry, Bankote, Rajapore &c. They are brahmins of the same caste as other brahmins, being considered to be equally holy, and possessing equal rights of saying Vedas as the "Chitpavan," "Devarshee" and "Deshastha" brahmins, but they have no marriage relationship with each other. The appellation "Karhada" is derived from their having been reputed to offer human sacrifice to their deity—sacrifice of any brahmin and particularly of their son-in-law if they can. These rites (of sacrifice) are of course not performed openly but very secretly, and, therefore, a brahmin is generally afraid of going to dine at a "karhada" brahmin's table if invited. These sacrifices are offered with the view of propitiating the deity, and to obtain therefrom wealth or longevity to the family. No other motive leads these cruel votaries to sacrifice what is the best and noblest work of GOD'S creation, viz., a human being.

The manner of sacrificing is differently given by different

sources. The common one resorted to is the secretly poisoning the intended victim at a feast, and thus he is made to pay for it with his life.

What is Mân Pân? The words mean Mân, respect, and Pân, betul (a leaf.) Mân is an inherited right of Patel, Koolkurnee, Pândê, Deshpândê, Surdêshpandê, Deshmook &c., of the village. When a marriage ceremony is to take place, they are given places in their meeting and betul-nut in order of their rank, and are asked to begin the ceremony. Mân Pân practically means ceremonial respect. This term passes for certain prerogatives possessed or inherited by certain classes of the community; for instance, a Patel of a village has the Mân of receiving first of all "Pân Sooparree" on a wedding ceremony in his village. He has also the Mân of leading his bullocks first and to the fore of all others on the annual bullock festival. He has besides the Mân of being invited to any extraordinary occasion or meeting in his village. In the like manner a King, a Patel, a Nawab, a Deshmook may have his Mân Pân.

The word Pân is also the concomitant of the word Mân and is commonly used when expressing or asserting the prerogative. The meaning of it singly is merely leaf (pân) and is universally known.

Bassim District. By J. VITAL, Esq., Civil Surgeon, Bassim.

1.—*Name of the blood sacrifice.*

Excepting Brahmins, all other castes called Hindoos offer blood sacrifice. Human sacrifice is out of practice. The animals offered are buffalo, goat, ram, ewe, cock, hen, chicken. The sacrifice performed by Brahmins is called Yaduya or Yag, and that of the lower castes' offerings are called Bâli.

2.—*Deity, male or female, to whom sacrificed.*

The deity to whom the Brahmins sacrifice is nothing but fire. The deities of other castes are;—male deities viz., Kundoba, Byroba, Mussoba, Bheeroba; the female, Bhownee, Kalida, Dhorga, Murreematha.

3.—*Form of deity.*

Khundoba, and Bhyroba are forms resembling human shape with four hands. The form of Bhowanee, Khalida,

and Dhoorga, resemble the human female having four hands, the last (Dhoorga) having eight hands. Mussoba and Bheeroba are one mass of stone, besmeared with red lead; that of Murreematha is that of one mass of unshaped stone and is most feared by all the Hindoos and Dhairs. The form of Kali Devi, is said to be very beautiful, —a majestic inspiring female form with a crown on her head, with eight arms and hands, mounted on a lion, and is represented in the act of killing a demon, Mahishasur, who fought in the shape of a buffalo. When the head of that animal was cut off, he proceeded from out of its body, in his own form. The picture of the Devithus, represents the demon with its form, above the waist. Often, this is only met with the head of the Deviput, in temples, and again in others a shapeless stone besmeared with red lead. The form of Khundoba is a well-shaped and well-dressed man, with a crown on, seated on a horse, and often with two of his wives near him. Asras, goddess of woods, Sutwai, goddess of children and recently confined women, both these have female forms, and are invariably represented by stones, besmeared with sendoor; they are temporarily put up for the occasion; for instance, a confined woman with her infant goes out of her house, collects a few stones, besmears them with sendoor, worships them and returns home, after which the stones are left there, unnoticed, and unworshipped by others.

4.—*On what occasion is the sacrifice?*

The day for sacrificing is not fixed. The Yag, or day of sacrificing is not a fixed one but the process lasts for about ten days. The lower castes have set days for the purpose, and vary in different places, but most of them have their sacrifices on Dussara festival, and some on the day on which they have vowed. Some again on the occasion of marriages, childbirths, recovery from sickness, deliverance from some calamity and pacification of the gods in time of epidemics,

5.—*What living creatures are sacrificed.*

As already stated, goats, buffalo, ram, ewe, cock, hen, chicken. Human sacrifice has been practised in ancient times, but is now prohibited.

6.—*Detail the customs and processes of the sacrifice.*

The Brahmins sacrifice by expressing a few words, Mantras in Vedas. Some are annual sacrifices on particular days, others offer in liquidation of vows made to deities. The process of sacrificing is, that the party proceeds to the temple

of the deity with flowers, sandalwood and incense, and after performing their prayer or poojah, the animal offered is now laid on the floor before the deity, and then, by a Mahomedan Moola (priest) a knife is thrust into its throat. Some thrust the living creatures into a blazing fire, as offering. The animal is then killed, and laid before the deity for a time. Sometimes a few drops of blood are sprinkled on the deity and then the offered animal is cooked. Other things, as rice, wheat cakes, &c., are also prepared, and when everything is ready, a little of each is put before the deity. The assembled people then feast on the remainder; the lower class of people worship the animal to be sacrificed and kill it according to their "Mân Pân."

7.—*Who are the worshipping sacrificing people, and who are the sacrificing priests?*

"Yaduga" is performed by Brahmins, and this being very expensive, so much so, to the extent of 5,000 Rupees, it is only performed by wealthy people. "Agnhotries" are the sacrificing priests. Hindoos are the worshipping and sacrificing people. The Mahomedans offer their sacrifice to their "peers" and the tombs. The priests for the animal offerings amongst Hindoos are generally Hindoos; for the Mahomedans, Moolas. When animal sacrifice is concerned, Brahmins will never act as priests.

8—*What are the names of the various gods of the people's race and tribes near you.*

The Hindoo gods are said to be 33 millions. The deities generally known are Ram, Kistna, Govind, Gopaul, Mahadeo, Vishnoo, Marolee, Kundoba, Bhyroba, Bhowanee, Musoba, &c. &c., Brahmins adore Ram, Vishnoo, Govind, Gopaul, Mahadeo, Marotee, Gunputee. The unlearned pay their homage to the numerous deities.

9.—*Are spirits worshipped, and if so, whose spirits?*

Ignorant people chiefly "Soodras" believe in spirits; they worship and offer sacrifices to the spirits of dead men. Some say, no spirits are worshipped, but offerings are made to some evil ones. "Sunyashis," tombs of holy men (Peers) are worshipped by all Mahomedans.

10.—*Are any of the elements worshipped, and if so, which of them, and by what race, or tribe, or people?*

Five elements (sun or fire, earth, water, air, and sky) are worshipped by all classes of Hindoos and Koonbees; the sun is worshipped the most as he is considered the visible

representative of God. The Parsee race particularly adore and pay their homage to the sun or fire.

11.—*Are trees worshipped, and if so, which of them, and by what race, or tribe, or people?*

Eight trees are the principal ones worshipped by all classes and tribes of Hindoos and Dhairs, 1, Toolas or Thoolsee; 2, Bel; 3, Peepul; 4, Bud; 5, Awali; 6, Oomber; 7, Shami; 8, Apta. The first two of these were unanimously considered in former times as the holiest of the whole, and are still sworn on either; the two last (Shami and Apta) are worshiped on Dussera day. Some say the first four are daily worshipped, the other four, on some particular days.

12.—*Are serpents worshipped, and if so, which of them, and by what race, or tribe, or people?*

Cobra-de-capello, or Naag, worshipped by all classes of Hindoos, and even, by some of the low caste people. The 5th day of "Shravun" their 5th month is the day of worshipping, and is called "Naag-Punchme." On the day of festival, the people pay their homage, and the Naags are held in the highest estimation, and fed with milk.

13—*Have any new deities or religion been recently introduced in the locality, and if so, describe?*

No new deities or new religion have been introduced in the district.

14.—*What is the name of the chief deity in the district, its form, by whom worshipped, and is it a pilgrim shrine?*

In the town of Bassim, there is one principal deity called Ballajee formed of one mass of stone, besmeared with sendoor, resembling a human shaped man. All Brahmins, Hindoos and the lower class of people worship it, but it is not a pilgrimshrine; onlya fairis held once a year, for three days. Atavillage about twelve miles from this station called "Naggurdoss" thereis a pilgrim shrine. To this place people from different parts, both pilgrims and traders, resort biennially. The festival takes place in commemoration of three goddesses; 1 Yeasari; 2, Toojapori's mother; 3, Mullapore's mother. The fair lasts for 22 days, the attendance from first tolast is said to amount to 141,084. The value of property such as copper, brass, cloths and other articles of various kinds brought and sold there amounts to Rs. 271,910. Also at Mungloorpeer, a town in the district about 24 miles from this, is seen a Mahomedan tomb or "peer" to which place all sorts of people attend and have a fair during the month of October yearly. It is a pilgrim shrine.

Blood sacrifices of human beings occurred till recently, amongst the Konds, and of buffaloes, bullocks, goats, pigs, kids and lambs, amongst the races of the peninsula of India.

Akola. By ALEXANDER PORTER, M. D., Civil Surgeon, Akola.

1. Name of the blood sacrifice.	Goats, buffaloes and lambs.
2. Deity, male or female, to whom sacrificed.	In some parts male deity, and in most parts female deity.
3. Form of deity.	In the shape of a human being.
4. On what occasion is the sacrifice?	On the occasions of cholera and small-pox.
5. What living creatures are sacrificed?	Fowls, kids, buffaloes and goats.
6. Detail the customs, and processes of the sacrifices.	When a vow is made by a person that a certain sacrifice should be made to

a certain deity, he is first bathed and adorned with a yellow colored cloth, having a flower garland on his neck, and after performing the usual ceremonies, incense burning, &c., the sacrifice is offered.

7. Who are the worshipping and sacrificing people and who are the sacrificing priests?	Generally the low caste people and the priests are also of the same race.
8. What are the names of the various gods of the people, races, and tribes, near you?	Khundoba and Davee.
9. Are spirits worshipped, and if so, whose spirits?	No spirits are worshipped.
10. Are any of the elements worshipped and if so, which of them and by what race, tribe, or people?	Elements are worshipped by many classes of people especially the water.

11. Are trees worshipped?	Trees are worshipped by Brahmins principally.
12. Are serpents worshipped?	Serpents are worshipped by Brahmins principally and many other sects also.
13. Have any new deities or new religion been recently introduced into the locality? If so, describe.	No.
14. What is the name of the chief deity in the district, its form, by whom worshipped, and is it a pilgrim shrine?	Siva is worshipped by all classes of people, and it is not a pilgrim shrine.

ART. XXIII.—*Medical Report upon the Town and surrounding Villages of Ganjam*, by R. HUFFTON, ESQ., Honorary Assistant Surgeon.

(Communicated by Inspector General, I. M. D.)

The town of Ganjam is situated in latitude 18° 23′ north and east longtitude 85° 6′. It is seated near the right or east bank of the Ruskhoolea or Ganjam river on a rising portion of a low flat plain which extends for miles from east to west, and is bounded on the north by a number of high hills, a few miles distant. The plain consists principally of paddy land, except on its eastern face near the sea where it is sandy, and the whole of it is cultivated almost to the doors of the houses when there is sufficient water for the purpose. Its gross annual revenue is about Rupees 15,000. The average elevation of the town is from 5 to 8, 9 and 10 feet above mean sea-level, and nowhere does it appear so high as the trunk road which passes through it. During the prevalence of the south-west and north-east monsoons the lowest portions of the town are inundated; and, as there are no drains to carry off surplus water, it is only removed by evaporation when the rains are over.

RIVER.—The river follows an easterly direction towards the coast north of the plain, and crosses the trunk road leading to Ganjam about a mile west of the town, where it is nearly half a mile broad, and falls into the sea

on its southern side. It is fordable at all times except during the freshets, when crossing must be done in boats. During high tide adults and empty carts can cross. At all other times the bed of the river for a few miles is partially covered with sea-water for some portion of the twenty-four hours daily. In its course the river nearly encircles one-half of the place, and emanations of a noxious character from its surface bed must add to the insalubrity of the town.

Numerous tanks and pools filled with decaying herbage and other decomposing matter dot the plain, principally in and around the town, from which noxious gases are constantly passing into the air, and the water from these places is used by the people for almost every purpose.

JUNGLE.—There is now a good deal of exuberant vegetation in several parts, especially about the dwellings of the inhabitants, and the remains of former gardens and compounds, the growth of the last two years, which in some measure prevents free ventilation, but the danger to health from this source is now much less than it was. Some few years ago a severe outbreak of fever raged in the station, and subsequently the Department of Public Works were engaged for some months in cutting down the jungle and otherwise cleaning the town.

SOIL.—The soil in and around Ganjam is alluvial, except near the sea where it is sandy. It is a dark tenacious loam containing apparently iron. This stratum of tenacious loamy soil, I am informed, is generally from 12 to 15 feet in thickness, except near the sea and banks of the river where it is less, and immediately underlying it soil of a more porous character is met with, in which probably moisture from above would readily percolate if the land was placed under a system of sub-soil drainage. At my suggestion several pits were dug in the fields in various parts on the outskirts of the town, each pit from 6 to 8 feet in depth, and on my last visit to Ganjam I examined the earth taken from the bottom of these pits, but found it to be the same in character as that on the surface.

WATER SUPPLY—Ganjam and surrounding villages are divided into four parts, and in describing the sources of water supply each will have to be taken in detail.

The town of Ganjam and adjacent villages, Borapilly and Pointhela, form one division; they occupy a centrical position near the trunk road, and the water supply to this part is furnished by tanks, wells, and pools. The water obtained from these sources for drinking, cooking, &c., cannot be worse. For the most part it is supplied from the filthy tanks before mentioned into which the drainage of the town is chiefly received with all the sewage it may carry with it, or the water is got from wells into which fluid of this nature percolates. In the account given by the Curnam there are in all twenty-nine wells, exclusive of numerous tanks, pools and hollows, which are generally filled to overflowing during the rainy season; many of these pools and hollows dry up in the hot weather, while others, the far greater portion, contain a filthy, slimy greenish fluid which is used for cooking and ablution purposes; a few of the better kind are used for drinking after straining the water. I looked at the water from a number of these tanks and, with the exception of three or four, they were all so bad that it is surprising the people used them for any purpose whatever. Of the twenty-nine stone wells eight are used for drinking. Of these three only, situated on the outskirts of the town, are described as really good. Some few of the more wealthy inhabitants, who will pay for the conveyance of it, procure their water from these latter wells. The water of all the other wells is so very brackish, or salty, that they are only used for bathing, and occasionally for cooking. These wells are mostly situated in the centre of those streets where the rice and paddy dealers reside, at about 200 yards from each other. These streets during the day are nearly covered by wet rice boiled in the husk, placed there for drying alongside of cattle ordure, in all stages of moisture, laid out in the sun for the same purpose. This practice probably has existed for many years. It is, therefore, not surprising that the water from these wells is so bad when it is considered that organic matter is constantly passing into them through the earth by percolation derived from the wet substances placed upon it daily. The inhabitants of this part of the town are very subject to fever. The residents in the adjoining villages of Borapilly and Pointhela suffer from this complaint in a less degree, and, in my humble opinion, the cause is to be looked for in the quality of the water they use, which is far more pure than that in the town.

The 2nd Division comprises Pedda Kunchipoorum, Chinna

Kunchipoorum, and Dolzepettah. These places are situated in the north-west of the plain near the bank of the river and so low as to be only 1 foot and 6 inches above mean sea-level. The residents generally are agriculturists, fishermen, and lime-burners. There is no conservancy, and the streets are in that condition seen in Indian villages not under municipal control. Drainage there is none except into the river when the place is sufficiently flooded for that purpose. There are no tanks except a few hollows which quickly dry up in hot weather. There are a few wells; the water of some I tasted, and found it good. The people generally use water from the river for drinking purposes. At the time of my visit I saw only two cases of fever. The number of sick is the smallest in Tabular Statement No. 1.

The 3rd Division is Dumdarapoorum. This is a village of ordinary size, situated to the south-west of the town of Ganjam on the river bank. The inhabitants are principally boatmen and fishermen. The conservancy is no better than those previously mentioned, but here, as in the town of Ganjam, the street in several places was covered with wet paddy and cowdung drying in the sun. The people drink river water for four months in the year during the freshets, at other times from wells in the vicinity, owing to the water of the river being salty. They are not so healthy as the people in Kunchipoorum. A few cases of enlarged spleen were observed in this village, and the number of sick is much greater than in the former place.

Several scattered hamlets, some of them rather far apart, constitute the 4th Division called Pullibunda. They are situated on the north-east of Ganjam. The number of sick is almost double that of the last-mentioned village—see Table of sick. The conservancy of these places is like all the others. The residents are generally boatmen, coolies, and dealers in salt. Their water is procured chiefly from wells. I found the water from several of them brackish, probably from proximity to the salt-pans. Not a single case of fever showed itself when I passed through. I only went through three of them. The wells were generally situated on elevated spots where sewage could not get to them. There were a few hollows which contained pretty clear water.

Drainage.—There is none except from the higher to the lower parts of the town caused by the natural configuration

of the ground where it lodges in numerous hollows in different parts and remains there until it dries up by evaporation. The old masonry tunnels of former times exist, but no drains or channels to carry off water.

During a portion of the year 1868-69 the Department of Public Works were engaged in removing the jungle and overgrown herbage in and around Ganjam, and a system of efficient drainage appears to have been commenced in the cutting of channels for letting off superfluous water on the north of the town, filling up filthy stagnant tanks and pools, repairing tunnels, &c., but the work was suddenly put a stop to by the Supreme Government at the period when all other public works in course of erection were suspended. Since that time the work has not been recommenced, although only a moiety of the sum set apart for it was used.

It appears to me that the severity and prevalence of the fever in Ganjam, during the period I have been in medical charge of Chetterpore, has not been so great as it was prior to the removal of the jungle, &c., by the Department of Public Works before mentioned, and I attribute this change for the better (however small) to the measures then instituted, but only very partially carried out.

CONSERVANCY.—There is no conservancy of any kind in operation. The refuse and sweepings of houses and stalls lie about in every direction near the dwellings of the people, and excepting the trunk road and a few others the streets in many places are covered by the people with cattle ordure in every stage of moisture, from the hard brattie to the semi-fluid cowdung which when sufficiently dry is used for fuel. The smell from this cause, coupled with that from rice boiled in the husk, spread on mats in close proximity with the other, contaminate the air so much as to sicken persons exposed to its influence who are unaccustomed to it.

There are no latrines, nor scavenger establishment in the place, the people make use of holes in their yards, or the nearest hedge or cover that may be convenient for the purpose.

HISTORY.—Previous to the year 1815, Ganjam was the head quarters of the district and the principal residence of a pretty large military force, European and Native, in the Northern Circars The chief civil authorities of the district with their establishments resided there, and it appears to have been for almost a century previous the most flourishing, populous, maritime town in the Presidency of Madras,

north of Masulipatam. The remains of magnificent buildings and the old ruined fort fully attest its former prosperity, although now it is a place of little note, and consists of the old native town of Ganjam greatly reduced in size, and the other divisions before mentioned.

In 1815, and two succeeding years, a very severe epidemic fever raged in the place, and villages for some miles around, so deadly in its character that many of its victims are said to have been carried off in from twenty-four to forty-eight hours. From the account given of this fever by some now living, it appears to have been an every-day fever, attended with very severe rigor of long duration, succeeded by heat, and after a few days by swellings of the whole body which terminated in death. Others again state that it was a fever of a bilious character marked by congestion of the viscera of the head, chest or belly. This disease is said to have originated from a flooding of the low country, the result of a storm, but none of the natives seem to have remembered it.

It was during the virulence of the epidemic that a general exodus of the Government establishments appears to have taken place, the Military were sent to Berhampore and the Civil to Munsoorcottah (now Gopaulpore) and Chicacole. Since that time, although the place has become much more healthy, it has never regained its former salubrity, and the residents ever since have been exposed to the attacks of an endemic fever, paludal in its character and type, and varying in intensity according to the amount of moisture in the atmosphere, high winds, and insanitary condition of the place.

The native idea is that the fever is dependent upon the bad quality of the water they are obliged to use, and they think that nothing will ameliorate the unhealthy condition of Ganjam until the whole of the inhabitants are furnished with good river water. So imbued are they with this notion that they begged of me to bring this subject prominently to the notice of the authorities, and gave me an urzee for that purpose.

The natives treat the fever by giving decoctions of various roots which act on the bowels, and drinks containing ginger, long pepper, and other spices. The generality of the people have faith in the use of quinine, and readily take it when prescribed for them.

Tabular Statement No. 1, shows that there are more sick

in the divisions of Damdarapoorum and Pullibunda, in proportion to their population, than in the other two. This I believe may be accounted for in the fact that the inhabitants of these places are generally of the poorest class of labourers, being chiefly boatmen, fishermen, coolies, and salt-makers, who, from the very nature of their occupation, are exposed to those conditions of temperature and other causes which favour the production of disease, in addition to the circumstance that their dwellings are situated either on the bank of the river, a little above its junction with the sea, or along the edge of extensive salt-pans.

The endemic fever of Ganjam, in my humble opinion, is in character that of all paludal fevers in most parts of the world where the nature of the soil, heat, and moisture combined are sufficient to bring about that condition which is the cause of them. In the present case I believe the increase of it in Ganjam is chiefly due to the cessation of the south-west and complete failure of the north-east monsoon, the action of the sun causing rapid evaporation of moisture from the earth's surface, and thus setting free those malarious germs which are the efficient cause of the disease.

I would here also bring to notice that many of the cases in the tabular statement are those of persons who have had fever repeatedly before, and whose constitutions have in a manner become saturated with malaria; and although cured for the time, yet the slightest change in the direction and force of the winds, or in the condition of the atmosphere, is sufficient to produce in them a recurrence of the complaint.

The rainfall during the months of August, September, and October this year has been very much less than for the corresponding period in the previous year, as shown in Table No. 2, and this circumstance, in all probability, has influenced in some degree the increase of fever, owing to the water used by the people holding in a more concentrated form those deleterious substances which when taken into the body predispose to disease.

The salt-pans situated on the north-east of the plain near Ganjam appear to be a fruitful source for the development of the disease. More cases of the Police stationed there are brought to Chetterpore for treatment than from any other station in the district.

The type of fever chiefly prevailing is the tertian, although there are many cases of quotidian and quartan fever. In those complicated with enlarged spleen I found

that they had suffered from the tertian type chiefly, and were otherwise weakly and anemic.

According to the statements given by a few of the natives of the place, it appears that sometimes, as in other places, a few of the cases of the intermittent type after a time take on the remittent form, attended occasionally with head symptoms, from which the person seldom recovers.

For the past two years supplies of quinine have been furnished to the Collector from Madras for the use of the inhabitants of the district on payment, but nothing specially for the sick in the town &c., of Ganjam. It is in contemplation to institute sanitary measures for the improvement of the health of the people of the district, and the sum of Rupees 1,000 has been passed in the Budget for that purpose during the coming year. I am informed that the Local Board have discretionary power to devote that sum or any part of it to the improvement of such localities as in their judgment may require it most.

The fever generally is quite amenable to proper treatment. A purge and subsequently a few large doses of quinine or quinine, arsenic and bark, given early, almost always suffice to dissipate it for the time; but it is very apt to recur when the person is exposed to a continuance of the causes which produce it. In such cases spleen complications frequently take place, and occasionally Beriberi supervenes, or it passes into the remittent form, when it becomes dangerous. The continued use of quinine combined with iron is very effective in preventing relapses

TABULAR STATEMENT No. 1. showing the amount of population, number of cases of fever, and proportion of sick

to population in the several divisions comprised under the town of Ganjam, &c.

Name of locality.	Amount of popuation in each division.	No. of sick in each division.	Proportion of sick to strength of population in each division.
Town of Ganjam	4,281	221	1 in $19\frac{1}{3}$
Kunchipoorum ...	809	7	1 in $115\frac{1}{2}$
Dumdarapoorum..	796	53	1 in 15
Pullibunda.........	1,054	87	1 in $12\frac{1}{10}$
Total...	6,940	368	1 in $18\frac{1}{3}$

TABLE No. 2. showing the rainfall in Ganjam during the undermentioned months for the years 1870-71.

Months.	1870.		1871.		Remarks.
	Inches.	Cents.	Inches.	Cents.	
August ...	5	2	3	5	No rain has fallen in the month of November
September.	12	55	6	...	
October ...	10	9	...	75	
Total...	27	66	9	80	

ART. XXIV.—*Return of Admission and Deaths from Dengue at Trichinopoly at October 14th 1872.*

(Communicated by Inspector General I. M. D)

Regiments	Duration of prevalence	Combatants. Native officers. Strength	Admitted.	Died.	Rank and File. S.	A	D	Recruit and Pension Boys. S.	A.	D.	Europeans. Officers. S	A	D.	Ladies S	A	D	Children. S.	A	D	Camp Followers. Men. S.	A.	D.	Women. S	A.	D.	Children. S	A.	D.	Civil Population. Men. S	A.	D.	Women. S.	A.	D.	Children. S	A.	D	Total. Strength.	Admitted.	Died
26th Regt N I	12th Aug to 14th Oct,	16	16		656	622	*a* 1	72	56		8	.	..	5	1	...	5		.	116	44	..	854	284		714	156	*b* 2		.	...	..	..					2,446	1,179	3
38th do, do.	16th Aug to 12th Oct.	16	15		652	526	1	47	36		8	4		2	1		2	...		149	34	1	809	187	2	820	214	8	...	.		.	..			...	...	2,505	1,017	12
19th do. do	16th Aug to 11th Oct	13	8	.	499	396	..	53	23	..	6	6	.	2	2		6	5		42	14	...	352	7	.	342	12	..		.	...		..	.				1,315	473	
Fort Hospital	19th Aug. to 17th Sept					..		..	...	..												..	..	.	..	...	..	...		814	*c* 1		749	...	...	40		.	1,603	1
Genl Hospital	Aug. to 12th Oct 1872.		.	.	..	.	...	.	.		...		.	..	.		..			.	...		.		...	...	..	.		150	*d* 1	...		.	.	..		..	150	1
Total		45	39		1,807	1,544	2	172	115	.	22	10		9	4	..	13	5	...	207	92	1	20,15	478	2	1,876	382	10		964	2	..	749	..	...	40	..	6,260	4,422	17

a. Dysentery following Dengue.
b. Convulsions.
One Lady and two Children were re-admitted.

c Dysentery supervened.
d. Paid Medical Pupil Chinnasawmy.

Summary.

Native Regiments including Camp Followers.

Date of first case.	Date of last case	Strength.	Admissions,	Deaths.
12th August 1872.	14th October 1872.	6,266.	2,669	15

Fort and General Hospitals,

Admissions.	Deaths
1,753	2

OURSELVES.

With scanty encouragement (and some positive and unanticipated discouragement) we have arrived near the completion of our sixth Volume, marking three years from the beginning of our undertaking. It rests now with the Medical Profession in this Presidency to decide whether the Journal shall continue to be issued or shall cease with its December number. We cannot go on devoting time and labor— valuable, at least to ourselves— to a task which either the apathy of our Medical brethren or our own incapacity prevents from being so useful as we expected when we began. Our regular contributors (to whom we take this opportunity of returning our warmest thanks) may be counted on the fingers; our contributors, regular and casual together, would not need more than the digits of the upper and lower extremities for enumeration. We were careful not to expect pecuniary advantages from our work, by which sage precaution we have evaded disappointment, but we confess we should like to number as subscribers more than 38 per cent. of Local Medical Officers, 17 per cent. of the British Service, 11 per cent. of the Apothecary grade and 2 per cent. of the Hospital Assistants. These figures represent the encouragement we receive from the different ranks of our profession.

We are quite willing to admit, as we have intimated above, that possibly our failure to meet with the degree of appreciation which we expected is due to our own deficiencies—that our success may have been equal, perhaps even superior, to our desert. This alternative hypothesis, however, if accepted can in no wise alter the practical conclusion.

Whether our comparative ill-success in meeting with support from our brethren is due to their apathy or our incapacity we are equally unable to continue our experiment without a larger measure of encouragement than we now receive. If the fault be our own, we have at least done our best— "angels can no more."

CLERICAL DOCTORS.

We have here lying before us a copy of the "Jamaica Church Chronicle" of the 17th June; in which we read with great interest an article entitled " plea for a Medical Priesthood". The writer earnestly pleads for a combination of the two professions "Divinity and Medicine" as often as it is practicable, and regrets that it was not recommended and expressly sanctioned by the Church in her Canons.

That such a combination would be, as it has been in isolated cases, of great benefit to the Colonial Churches, nobody ever would or could doubt; but the question is how far it would be advisable to carry out what the writer of this article principally advocates, viz.—that a Medical man after he has taken holy orders should support himself entirely by his Medical profession and not be in any way a burden to the Church.

What does Scripture say to this.—Christ went about healing the sick in body and soul. But then Christ took no fees whatsoever. St. Paul during his ministry supported himself by his trade of tent-making; but this means of support is not one which would bring him in such close and frequent contact with his Christians of the various Churches, as the Medical profession would a clergyman who was in charge of a parish.

What does the Church of England say on this matter? It prohibits a Clergyman from entering into any business or trade or other profession: and why? Because experience has taught, firstly, that the world lessens its esteem towards those who call themselves ministers of religion and yet at the same time are trying to increase their incomes and to enrich themselves; secondly, that the clergy are at the best but weak and just as much exposed to the temptation of love of money and riches as others and might by giving way to such temptation greatly mar their usefulness and influence for good. Church History will bear us out in our statement. Let us assume a case. Suppose a medical man has established himself in a village where there are the rich and the poor living, and has succeeded in getting up a large practice which yields him enough to live comfortably and above care. Suppose also that such a medical man possesses all the necessary qualifications and knowledge, and is ordained as incumbent of that village where he has been practising, without any remuneration for his clerical duties. As Doctor the greatest portion of his time would be taken up in visiting the sick, how would the well and hearty fare, what time would be left him to care for their spiritual concerns such as regular and systematic house visiting? What time could a medical man reckon upon as his own, to carry out the regular ministrations of the sanctuary? And again, suppose squire S. who pays a good fee, and poor blacksmith T. who cannot afford any, are both taken ill at the same time, would not the clerical medicus be placed in an awkward position, before the public and with his rich patient, in deciding whom to attend first and how many visits to pay to each patient? For the welfare of a parish the medical profession combined with the clerical one would prove a great blessing, if the former is honorary and

the latter the source from which the income is derived, but not otherwise.

As regards medical men who derive a certain income and are placed in charge of hospitals, the case is altogether a different one. Thus situated a Doctor who is also in Holy Orders would prove a great blessing, as he then not only could attend to the bodily but also to the spiritual wants of the inmates. Knowing them by frequent visits he would get better acquainted with their spiritual state and would be always more at hand for any sudden emergency than a Chaplain who only now and then can visit the hospital, and who cannot be so regular as the Doctor in attendance by the bedside of the patients.

The Madras General Hospital is one of those places where we think the plan suggested by the Jamaica Doctor and Divine could be carried out with great benefit. At present there are three medical men attached to the hospital, two of whom visit the place regularly twice a day, while the third resides there and is at hand day and night to attend to the wants of the patients. But how does that hospital with its hundreds of patients fare as regards spiritual matters? a chaplain is told off to attend to the duties there in addition to a large district of which he is placed in charge. It is next to an impossibility for him to pay more than one or two flying visits weekly to the hospital, and in case of any emergency he is not, he cannot be, at hand to soothe the last moments of the dying with spiritual comfort. Cases have happened where poor sufferers have begged to have a clergyman to whom they could confide the wants of their souls and from whom they could hear words of encouragement and counsel, ere they passed away to the land unknown, but such a clergyman could not be found. He was on leave—or he was out visiting his District, or when he did come as soon

as he had received the message, the poor sufferer had passed away, and was beyond the power of human comfort and consolation. But such cases would *not* happen if a resident medical man had been admitted to Holy Orders. He would be there day and night not only to relieve the bodily ailments but also to attend to the spiritual wants of his patients. Is such a plan impracticable in the General Hospital ?

We have here given but a very cursory view of the subject, which is a very interesting one. Our time and space do not allow us to enlarge on it at present, but we shall be glad to publish suggestions on the matter and thus to have it thoroughly discussed.

CHLOROFORM AND MORPHIA COMBINED.

In the early part of this year, M. Claude Bernard brought forward at a meeting of the Institute a paper on this subject, written by a pupil of his, M. Guibert. In experiments which the latter had conducted it was found that when a patient under the influence of morphia was subjected to the action of chloroform in the ordinary way two distinct conditions were procurable, *analgesia* and *anæsthesia*. When chloroform was administered after the hypodermic injection of one to two centigrams of hydrochlorate of morphia, a state of analgesia was first produced, in which consciousness and power of voluntary movement were preserved ; and which is suited to the performance of minor surgical operations and to labor cases, inasmuch as sensibility to pain is notably lessened. A more prolonged and uninterrupted inhalation gives sleep with anæsthesia and muscular relaxation, a condition suitable to the performance of

capital operations and termed by Bernard *mixed anæsthesia.*

The state of analgesia had not been previously described or tested therapeutically. The author made about thirty observations, half the cases being obstetric, and came to the conclusion that the condition was likely to prove of great value in laborious labors, in operations unattended by lesions of the nervous trunks and in the treatment of certain very painful affections, as lead colic or hepatic or nephritic colic. The dose of morphia varied from one to two centigrams; that of chloroform is not so easily specified, owing to loss by evaporation. The latter, however, must be relatively small as it was found that the analgetic state could be maintained for several hours, in severe cases of lead colic, by simply inhaling the chloroform at intervals from an unstoppered phial. It was to cases of laborious labor that analgesia seemed likely to become most applicable in practice. It diminishes the suffering very decidedly and it may be kept up for several hours without injury to mother or child, without interfering with regular uterine action or predisposing to post-partum hæmorrhage. The following is the procedure followed. About a centigram of hydrochlorate of morphia is injected beneath the skin of the forearm, when the pains are becoming difficult to bear and signs of agitation, anxiety and despondency are appearing. A quarter of an hour after the injection chloroform inhalation is commenced in the ordinary way, at the beginning of a pain. After ten inspirations of air mingled with chloroform vapor the patient feels the suffering attendant on the uterine contraction diminishing, while the uterine action remains unimpaired. The inhalation is then discontinued and resumed at the onset of each pain to the termination of the labor. When the head is pressing on the perineum and the analgesia becomes less pronounced

there need be no hesitation about injecting half a centigram of morphia. After this treatment there is much less of the fatigue which usually follows difficult labor.

In one case the author performed version more than sixteen hours after the escape of the waters, with the greatest ease, the state of analgesia having been induced ; the mother remaining capable of answering questions but not uttering cry or complaint. The combined action of the morphia and the chloroform had completely obviated that retraction of the uterus which renders the operation so difficult to the accoucheur and so painful to the patient. The condition can easily be maintained without passing into anæsthesia if the inhalations are sufficiently often interrupted.

IRISH MEDICAL BENEVOLENT FUND.

We have received the Thirtieth Annual Report of this most deserving Society and we are glad to find not only that its means of doing good, though far from being equal to its deserts, are increasing year by year, but also that contributions from the Indian Branches are growing annually more considerable. During the year 1871-72 £841-10-6 was expended in grants to medical men incapacitated for work by age or illness or to help the widows and orphans of brethren who died and left their families destitute or imperfectly provided for. Nine medical men were amongst the applicants for grants, sixty widows and sixteen orphans.

The Bombay Branch, the first organized in India, remitted over £79 during the past year. The newly formed Bengal Branch sent more than £41. Madras contributed Rs. 420, but less than might have been expected of her. Out of 50 members of the local

service from whom help might reasonably have been hoped for, we can count but 16 names in the Report and the sister service is still more inefficiently represented. We hope that the thirty-first Report will show signs of more active sympathy among Irish medical officers in Madras with a Society which has so high a claim to their support.

Dr. P. G. Fitzgerald, Madras, will be glad to receive contributions from Indian officers and E. A. Gibbon, Esq. R. A., Ramandroog, continues to act as Joint Secretary in this Presidency for the British Medical Service.

REVIEW

Report of the Sanitary Commissioner for Madras for 1871.

This work of the Sanitary Commissioner represents a vast amount of well bestowed labour. The subjects treated of are numerous and varied. The volume is a large one, but it would be difficult to suggest curtailment without loss. It has been affirmed more than once that the office of Sanitary Commissioner is quite unnecessary, a needless expense, that he only does work which is or ought to be done by the Deputy Inspector Generals. This we very much doubt. These officers lead a very busy life, and have no time to do most of the work of the Sanitary Commissioner.

The first subject noticed is the sickness and mortality among British troops. The mean annual strength was 10,802, the total number of cases of sickness 12,781, the average daily sick 617·09, and the number of deaths 225. These figures give 1183·2 per 1,000 admissions, 57·12 per 1,000 daily sick, and 20·82 per 1,000 deaths. They are much about the average of the last ten years. Cholera was generally absent during the year from all stations except Secunderabad, where a sudden outbreak attacked 71 out of 360 of Her Majesty's 18th Hussars in three days, carrying off 33 of them. "Typhoid fever was imported from Ireland" into Cannanore and Calicut. With reference to this disease our author is of opinion that "it is not an indigenous disease of "India. If the natives suffer from it at all we can find no "conclusive evidence of the fact. But young persons of "European extraction are prone to suffer, more in some years "and in some stations than in others, and of late years just "as the importation of troops and passengers from England "has increased so has typhoid fever been commonly ob- "served." In answer to those who think that a high temperature is favourable to congestion of Peyer's patches, he informs us that typhoid is most prevalent in the cool climates of Bangalore, Secunderabad and Wellington, and that too in the cold seasons of the year, and therefore he does not admit that the heat has anything at all to do with the production of Typhoid. It is unfortunately very difficult to

prove the existence of such a disease as this among natives, *post mortem* examinations being so rarely allowed.

The question of age in relation to the British soldiers' mortality in India is entered into very minutely and the conclusion come to is that the Home Government has no statistical authority for deciding against sending soldiers under 20 years of age to India. They have done so on the ground that such soldiers are more liable to disease and early death than those who arrive in India at a more mature age. No statistics showing this, as regards disease, have yet been made out, and the tables of mortality prove that " as regards " diseases fatal to life the young soldiers have a pre-eminent " advantage over those of maturer years." For example while the number of deaths per 1000 under 20 years of age is 7·4, that between 20 and 25 is 13·7: between 25 and 30—21·6, and so on. There is nothing here but the usual law of increase of mortality according to age. But beside this Mr. Cornish tries to make out that men below 20 do not suffer ultimately in a greater ratio than those coming to India between 20 and 25. This he does indirectly by means of Actuaries' reports on the India Funds. Military Officers come to India under 20 as a rule, while medical men average 24 years on arrival. The reports show that a larger proportion of the latter die between the ages of 25 and 35 than of the former ; and Mr. Cornish affirms that " as re- " gards climate &c. the fact that both Medical and Military " Officers served in the same Presidency, will be sufficient " to show that both classes existed under exactly similar " conditions of life." Our opinion is that the Medical Officer in this country runs much greater risks as regards his life than the military officer. The latter rarely dies on the field in these days. The former has constantly to face death in many shapes, in the camp, the hospital and by the bed-side. There is one respect in which we think the soldier is damaged by coming to this country under 20 and that is in his physical development. His life here is a very idle one, on the whole indeed a luxurious one. With the exception of a little parade in the morning and occasionally in the evening he does nothing. During the greater part of the day he lies stretched on his cot, and the consequence must necessarily be that his development comes quickly to a stand. Instead of filling out in bone and muscle to the age of 25 or thereabouts he sticks at 20 in these respects. His usefulness as a soldier must be always less than that of a fully matured man. No

Indian statistics could well show this as the soldier's period of service in the country is so short. If we could follow him home, however, we ought to find him old before his time. We think this is a common result in the case of officers and others who have come young to India. It has been shown that the lives of the married Madras Medical Officers have been very much better than those of the unmarried. Our author ascribes this to "habits of life." May it not rather be due to the fact that the unmarried officers get more knocking about and more dangerous work just because they are unmarried and have no incumbrances? To settle the question of more or less sickness among young soldiers in India, Mr. Cornish has suggested a new form to the Government of India for medical officers to fill up. It would answer the purpose most effectually, but it has not been sanctioned on account of the large number of returns already required of these men.

The number of children with the troops amounted to 2,982. As usual the mortality among them was great and, as usual the deaths were most numerous among children under two years of age, from convulsions, teething, diarrhœa and bronchitis. These "tell a tale of bad or injudicious feeding, or of exposure, and of defective clothing."

The subjects of venereal disease and the effects of the Contagious Diseases Act are treated very fully. The number of admissions from these diseases is still very large, being 171 for every 1000 strength. This is less than the average of the last five years which was 196 per 1000 and of the fifteen before that—namely 263 per 1000. It is generally stated that the individual cases are much less severe than they used to be, the proportion of indurated sores being much less than formerly. Dr. Cornish thinks however that soft chancres in this country are often followed by constitutional symptoms. On the whole he is satisfied that the Contagious Diseases Regulations have done some good; and one reason why they have not done a great deal more is that there are large classes of native women who practise prostitution whom the Act cannot or at least has not reached. Such are the pagoda and dancing girls, grass-cutters, female coolies employed about barracks and many others. Another reason is that the ordinary Police of the country have every where proved inefficient as detectives in this department. "The law is very laxly administered, and we have no right to look for very marked results while the regulations are allowed to be sys-

tematically evaded." It was thought that prostitutes would rather like periodical examinations with a view to preservation of health. On the contrary they hate them and avoid them as much as possible, often changing their names, castes and residences on this account. In Madras most of the prostitutes live beyond municipal limits, and only come into town at night to ply their trade. In Secunderabad we are told that women pull the soldiers' punkahs at night. This might be used as a strong argument in favour of the introduction of steam as in the General Hospital at Madras.

Under the heading "Stational Statistics" European Troops—we find that while the population of Madras was estimated at 720,000 in 1839, and 450,000, in 1863, it is now proved to be not quite 400,000, and most probably it never exceeded this figure. The mortality in 1871 was registered at 13,034, and assuming this to be exact we have a mortality rate of nearly 33 per 1000, so that Madras is not the healthy town it was formerly believed to be. The General Review of Madras is so interesting that we give it in full.

" Madras although so large a town, is unproductive in a " politico-economical sense.

" It has no prosperous manufactures or industries that " would naturally attract a population, or cause it to in- " crease rapidly. Rather more than one hundred years ago, " it was a mere fishing village, but it grew very suddenly " into a town, during the period when the surrounding " country was unsettled by war and invasions, and when " the East India Company began to dream of conquest and " annexation, in lieu of simple trading.

" Its growth was dependent on an accident, that is, on the " presence of the English Factory, and on the fact that, " in the struggle among foreign traders for supremacy in " the East, the English proved themselves the strongest, " able not only to protect themselves from the tyranny and " extortion of native rulers, but the numerous communities, " who were bound up with them in commercial relations.

" As Madras was in its early days, so will it probably re- " main to the end of the chapter. It is the head-quarters " of Government, and the wealthiest and most influential " of its native residents are either connected with the ad- " ministration of the Government, or have derived their " wealth and position from those formerly in Government " employ. Beyond the official classes, and their very numer- " ous dependents, the few import and export merchants,

"money lenders, retail dealers, and bazaar men, necessary to "supply their wants, there are no classes of persons who con- "tribute to the wealth or prosperity of the place. From "a sanitary point of view, we have to look at the popula- "tion of Madras, as made up very largely of a people bor- "dering closely on the confines of actual poverty. A popu- "lation that, if it can find a sufficiency of plain food and "scanty clothing is well off, but that has no surplus income "to expend in house decoration, or in the provision of "modern sanitary appliances, such as towns of the same size "in other countries may necessarily be expected to enjoy... "............... There are many localities within the area of "the town limits that are fairly healthy, but these healthy "spots are not to be found amidst the older portions of the "town, where the soil has become sodden with the filth of "bygone generations, and where the air is polluted by gase- "ous emanations from sewers of indescribable foulness, and "where the subsoil water consumed by the population has "been tainted from the pollution of the earth. In these por- "tions of the town we shall assuredly find that the people "are a sickly and short-lived race."

As regards deaths among soldiers Bellary has been the healthiest station in the Presidency for the last ten years. This has been coincident with a cycle of dry seasons and a perceptible fall in the level of subsoil moisture. Bellary used to have good gardens and grow rich grapes. These are all gone. Sometimes there is barely enough water to supply the troops.

The average jail population during the year was 9,299. The admissions were only 779·9 per 1000, the daily sick 30·3, and the deaths 17·9. Considering that the jail population is of all ages and composed of men of "wild and precarious modes of existence," we think with our author that this mortality is as low as it is possible for the most perfect sanitary regulations to make it; that the "sanitary victory as regards the jail administration of this Presidency is the completest triumph that we can possibly claim." In ten years the hospital admissions have been reduced by more than one-half, and the mortality nearly three fourths. The sickness and mortality in the District Jails is always greater than that in the Central Jails. This is partly due to their defective sanitary arrangements, but Mr. Cornish thinks it is mainly due to the fact that their prisoners are chiefly short-sentence men, while those of the Central Jails are mostly

long-sentenced. He says that "there can be no question "that the first and second years of life in jail are the most "trying to the health of the criminal classes. The complete "change of life involved in confinement within jail must in "itself have considerable influence on health &c." The decline in the mortality from cholera, diarrhœa, dysentry, dropsy and anœmia in recent years has been very marked, and there can be no doubt that this has been wholly due to improved sanitary arrangements especially as regards diet, ventilation and conservancy. Nowhere has the dry earth system proved such a perfect success as in our Indian Jails, and it would be well if some eminent sceptics at home would come and see and be converted.

The subject of registration of births and deaths is not yet a pleasant one to consider. The registration of births especially has been a failure hitherto. The last census has shown the population of the whole Presidency to be slightly over 30,000,000, while the total number of births registered has been only 517,109 as only 17 per 1000. The number of deaths recorded is almost equally absurd, being only 444,371, or only 14·7 per 1000. The figures are steadily improving however and in time, when all prejudices are removed, we may expect accurate returns.

The much disputed subject of cholera comes next to be treated. We read that the emanation of cholera that left Lower Bengal in 1863 did not finally die out in some districts of this Presidency until the first quarter of 1868: also that the epidemic still prevailing in some parts of Southern India in the early part of 1872 left Bengal in 1868. It is hence concluded "that the duration of a cholera epi-"demic in southern India is from four to six years, that it has "distinct periods of development, of vigorous life, and decline, "and that the latter stages of the 1868 epidemic had com-"menced in the year 1871." A remarkable peculiarity has been noticed in the progress of the epidemic. While its general direction has been southward like that of all cholera epidemics, in 1871 it made a distinct backward or Northern movement into districts which had been passed over untouched in 1870. It is pleasant to notice that the mortality from it has been much less than from the previous epidemic. Many carefully observed facts are recorded in this report which tend to prove that cholera spreads from one village to another and from one district to another by human intercourse, and that its local spread in individual towns and

villages is largely favoured by the use of contaminated water. There is nothing whatever to show that its progress is favoured or obstructed by the wind. The cholera which cut up the poor Hussars at Secunderabad has been traced with tolerable certainty. They got their water supply from a well on the parade ground, open to all, the immediate neighbourhood of which was used by native travellers as a latrine. Cholera appeared in the bazaar at Secunderabad on the 20th May attacking and killing three travellers who arrived there two days previously from a district at the east end of the Nizam's country where cholera prevailed at the time. On the 22nd the wife of a sepoy was said to have died of it. On the 23rd a party of travellers came from the east through villages affected with cholera and encamped close to the Hussars' barracks. On the following evening it broke out among the Hussars and in 48 hours 53 persons were attacked : the whole force of the outbreak was at an end practically after the fourth day. The water supply was changed as soon as the disease made its appearance. In the case of an outbreak at a place called Kotapully in the Kurnool district in January 1871 ; some travellers arrived there from cholera-stricken districts on the 23rd, and left on the 24th, three of them were seized with cholera on the 24th, and on the 25th 41 of the villagers were attacked. Only a few more cases occurred and then the disease died a natural death. This was the only outbreak of cholera in the district during the year. The water supply at Kotapully was from a shallow open well frequented by travellers and villagers. The water was impure and liable to pollution, "and the disease broke out " on the second day after the arrival of the pilgrims, three of " whom suffered from it during their stay in the place, *i. e*, " the outbreak of disease occurred at a time when the " fermentation changes in an assumed choleraically polluted water had had time to take place." In this case the facts are strongly in favour of the disease having been caused by polluted water. It is curious however that the disease should stop so suddenly when there is nothing to show that the water supply was changed as at Secunderabad. If the outbreak was due to cholerical contamination of the water by the pilgrims, why did it cease so soon ? Since the disease prevailed extensively in the village on the 24th the water must have been fearfully polluted on that and succeeding days, and yet the cholera died out in a day or two. It is ust possible that all the predisposed persons were attacked,

and that the remainder were proof against it for the time being.

20,823 deaths from small pox were registered during the year. The wonder is that the mortality was not greater. Vaccination as at present carried on is no check to its spread. Not five per cent. of the childern born are vaccinated under one year of age. This is not the fault of the vaccinators but of the system. What is wanted is compulsory vaccination, and there can be no difficulty in this now that a large proportion of the births are registered. The evidence of 1871, like that of previous years seems to show that "in "the south of India cycles of cholera and small pox alternate, "so that when cholera is raging, and reaping a full harvest "of victims throughout the length and breadth of the land, "smallpox is for the time being in abeyance, &c."

In regard to fevers some new and important facts appear to be made out. Hitherto the presence of malarious fever in any locality was supposed to be fully explained by local conditions of soil and air. The sickness statistics of the last five years however show that we must take wider views of malaria, and seek for other causes of its prevalence and spread. These show that "Malaria, or whatever we may "choose to call it, has existence and laws of movement in-"dependent of mere local conditions of climate and physical geography." A malarial wave has been passing southwards and westward for the last few years. It reached Salem in 1869, and Coimbatore and Trichinopoly in 1870. This is shown by the accompanying table which gives the mortality from fever.

Districts	...	1868	1869	1870	1871
Salem	...	5,771	9,271	15,658	19,500
Coimbatore	...	3,425	3,483	7,612	11,925
Trichinopoly	...	2.521	2,689	6,289	9 942

The mortality from this cause in South Canara has increased in 1871. The observations have not extended over a sufficient number of years to warrant us in drawing any practical conclusions as yet, but enough has been done to encourage Sanitary Commissioners in working out the problem.

We have not noticed all the subjects treated of in this volume, but we think we have written enough to show its great value. We do not know any work more useful for Assistant Surgeons of the Indian service on their first arrival in the country.

MEDICAL MISCELLANY.

A new means of combating muscular contraction.

Every one is familiar with the resistance offered by muscular contraction in the reduction of dislocations or of fractures with displacements of the fragments. In order to avoid this difficulty, resort is had to reduction as soon after the accident as possible, to profit by the condition of stupor existent at that time. After this period etherization becomes necessary. M. Broca has devised, says the *Lyon Médicale*, a means which is void of the inconveniences of anæsthesia; it is compression of the principal artery of the wounded limb. The muscles deprived of the blood necessary for the exercise of their functions by compression of the brachial or femoral arteries are unable to contract.—*Medical Press and Circular.*

The Female Medical School at Zurich.

THE *Revue des Deux Mondes* gives some interesting statistics of the female students at Zurich since the year 1864, when two Russian ladies first ventured to attend the Zurich classes, a couple of Zurich dames having been previously admitted to certain lectures. The appearance of the Russians led to a discussion in the senatus in 1865, when parties were pretty evenly balanced; but no decision was arrived at, as it was thought the ladies would hardly persevere in their designs. In 1867, in fact, one of the visitors did withdraw; but the other, who had made real progress, announced her intention of going up for the degree of M.D. This necessitated admission as a matriculated student of the University, to which the rector gave his consent without further consulting the Senatus, under the impression, apparently, that it would prove an isolated case. The lady passed with honours, and before the close of the year two more female students arrived from England. In 1868 Switzerland and America each sent a representative, and two years after Austria and Germany. By far the largest number, however, came from Russia. In 1869 there were nine Russian students of the fairer sex, and at the end of 1871 no less than seventeen. There are now sixty-three in all at the University, fifty-one of whom, including forty-four Russians, attend the medical, and twelve the philosophical courses. The large number of Russians may be explained by the fact that for

some time ladies have been admitted to the gymnasia or upper schools of the Russian provincial capital, and even to a special course of lectures at the Universities. Since 1867 six ladies have taken the degree of M.D. at Zurich and seventeen have abandoned their studies in despair. As the medical students at the University number at present 208, it will be seen that the ladies are nearly one-fourth of the whole. Of the six Zurich M.D.'s, two are practising in St. Petersburg, one of them in partnership with her husband, a third is with Dr. Garrett-Anderson in London, the fourth Physician to the Children's Hospital in Boston, and the fifth assistant to Dr. Bierner, Professor of Clinical Medicine at Zurich.—*The Doctor.*

Introduction of corrosive sublimate hypodermically, in Syphilis.

Dr. Carl Proegler, of Naperville, Ill. (*Chicago Medical Jour.*), thinks, with Prof. Lewin of Berlin, the subcutaneous injection of corrosive sublimate in syphilitic cases is decidedly preferable to internal administration, fumigation, inunction, or introduction of mercurial suppositories. From statistics given by Prof. Lewin, Surgeon-in-chief of the syphilitic wards of the Charity Hospital, Berlin, where upwards of 2,000 patients have been treated by the subcutaneous method with the mercurial sublimate, it was found that from $1\frac{1}{2}$ to 3 grains of the bichloride is all that was needed for the average of cases, including the most obstinate forms of tertiary syphilis. The quantity used daily depends somewhat on the gravity of the case. Ordinarily, doses from $\frac{1}{12}$ to $\frac{1}{4}$ of a grain are administered subcutaneously once each day. If the prodromes of salivation occur, a pause of three or four days may take place, when the treatment may be resumed. When a patient exhibits a peculiarly sensitive diathesis, and whenever the sublimate injection is followed with pain, a small quantity of morphine may be added as a corrective. In this class of cases he has added the morphine, or applied externally a chloroform liniment, and never had any irritation or abscesses resulting.

Prof. Von. Siegmund (*Berl. Klin. Woch.*), in commenting on his 200 cases recently treated with subcutaneous injections of sublimate, says that there occurred but two abscesses in all, which resulted mainly from unskilful insertion of the liquid. He has seen no affection of the gums, no disturbances of the respiration or circulation, nor any other mercurial effects of any moment.

Dr. Proegler treated last year, in the German army, over 150 cases of syphilis by this method with success, and also, conjointly with Dr. Gale, of Aurora, over 40 cases in private practice.—*The Medical Record.*

Belladonna in Opium Poisoning.

Dr. R. D. Bone, stimulated by a discussion at the Tennessee Medical Society, upon a paper by Dr. Alexander, "On Opium poisoning treated with large doses of Belladonna," reports a case in the *Nashville Journal of Medicine* for August.

A child, aged seven months, through mistake of the mother, took morphia sol., grs. ij. After profound coma had endured some hours, belladonna ex. grs. ijss. (rubbed in water as a vehicle) was given every ten minutes, till ten grains had been taken. It was introduced by enema.

It must be remarked that other means were used conjointly with the belladonna, as a stream of cold water to the head, hot pediluvia, flagellation, a strong decoction of green coffee by enema, &c.

The first appearance of resuscitation was increased in the number of respirations per minute, then dilatation of pupil—at first continually alternated between dilatation and contraction, till at last a full dilated pupil was shown. Anæsthesia gradually subsided, muscular action resumed its office, and in two hours the child cried, and from that time recovered.

It is also mentioned that Dr. N. G. M. Walker had a case where laudanum was taken for suicidal purposes, in which belladonna thrown into the stomach had the happiest effect.—*The Doctor.*

*Physiological Antagonism between Atropia and Morphia.**

Miss C., æt 25, a lady of nervous temperament, and who had on several occasions suffered from various forms of neuralgia, consulted me for severe neuralgia in the left side of her face and head, produced by a dental operation to which she had recently submitted.

Having, on previous occasions noticed the hypodermic employment of morphia and atropia combined, to be followed, in this lady, by the happiest results, I determined to use this mode of treatment again for the present existing suffering.

I may here observe that my experience coincides with the teaching I acquired while a pupil of Dr. Stokes—namely, that to obtain the best results from the use of hypnotics, it is advisable to administer the drugs at the usual hour of sleep so as to anticipate, as it were, the normal process of habit.

In accordance with this principle, I paid my patient a visit at 10 o'clock in the evening, purposing to inject under the skin of the arm $\frac{1}{4}$ grain of acet. morphiæ, along with 1-50th grain of sulph. atropiæ.

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* Read before Medical Society of the College of Physicians of Ireland. By Dr. J. Magee Fenny.

The addition of the atropia diminishes the tendency to nausea, so constantly following the administration of morphia alone, and produces anodyne effects not to be obtained by morphia.

As, however, my atropia solution had been in my possession for over three months, and as I noticed several fungoid bodies floating through it, I conceived it had lost much of its strength, and that I ought, therefore, so as to obtain its full effects, to give of it a larger quantity than usual. Acting on this conception—a proceeding which the circumstances that followed made me greatly regret—I administered subcutaneously double the usual quantity of the atropia solution, along with $\frac{1}{4}$ grain of morphia. In about twenty minutes, Miss C.'s maid hastily summoned me to her bed side.

The condition I found her in was quite new to me. The symptoms were as follows:—Complaining of great cold, so that she was shivering and trembling all over (to which perhaps alarm may have tended), and her teeth chattering, her feet and hands were cold, although a hot jar was placed to her feet, and additional blankets covered her. The tongue was dry, parched, and rough, and this condition evidently extended to the pharynx, as she complained of dryness of the throat, and constantly asked for drinks, although, when they were given, she was hardly able to swallow them. Her speech was thick and inarticulate; she complained of dimness of vision, saying she could not see me, and that flashes of bright light passed before her eyes. The pupils were much dilated and unaffected by approximating the light of the candle towards them. The pulse very small, up to 130. Respiration 32, and very shallow. On being questioned why she could not draw a deep breath, she replied that she was caught on attempting to do so.

The case was evidently one of atropism, produced by an overdose of the alkaloid. Hoping the ill-effects would shortly pass away, I remained beside her to watch the result—but instead of becoming better, I soon saw the case change, from one of simple interest, into one of no small anxiety to me.

In about ten mintes, she evidenced great uneasiness, tossed about, flexing and extending her arms and legs: she now became delirious, talking on various subjects, being quite unaware of my presence, and imagined several persons were in the room, giving directions to them on various domestic matters. She grasped at imaginary objects in the air; and from, no doubt, the parched state of her throat, frequently attempted to pass her finger to the back of the throat, and nearly succeeded, on one or two occasions, in producing vomiting. The pulse still kept high, and I determined to send for additional aid and advice. Before doing so, however, the thought occurred to me to try the effect of a dose of morphia as a general physiological antidote—as the recollection of cases of belladonna poisoning having been successfully

treated on this principle by Dr. Wharton, flashed across my memory. (These cases are detailed in the MEDICAL PRESS for 1862.)

Accordingly I injected $\frac{1}{3}$ grain of the acet morphia.

In less than five minutes I observed the restlessness and jactitation cease, the skin to become warm, and the respiration fall to 20, while the pulse came down below 100, and was fuller. In a few minutes afterwards—ten altogether from the second injection—my patient was sound asleep, and in a fair way to spend a quiet night. After remaining in the house about half an hour longer, I took my leave, and in the morning I learned she had slept well, had taken a hearty breakfast and that the neuralgia had entirely disappeared. She visited me in my study in the afternoon, and with the exception of slight inconvenience arising from the still dilated condition of the pupils, she expressed herself as being as well as ever.

The points of interest which this case furnishes to the scientific and the practical man alike are neither few nor insignificant. Whether the quantity injected would have, if left to itself, ended in the same happy way, or otherwise, I am unable to state, but the points of resemblance between the symptoms just detailed, and those of a poisonous dose of belladonna, were too striking to buoy me up with any such hope as that.—*Medical Press and Circular.*

Condemnation for concealment of birth; delivery six weeks after.

A girl named Bernard, aged 20, was about 7 months advanced in pregnancy when, on the 8th October 1868, some hæmorhage came on and the pregnancy seemed to have disappeared. A crime was suspected. Questioned, the girl confessed that being conscious of a flow she retired to the water-closet, where she remained ten minutes, 'there,' she said 'every thing left me: I had no time to look because I was called away.' The midwife of a little place in the neighbourhood and the District Medical Officer both affirmed that the girl had been recently delivered. Nevertheless, when the water-closets were examined by order of the Police no fœtus was discovered. Inquiries were repeated. It was urged upon the girl that it was her interest, in order to escape severe punishment, to make free and full confession and she was asked if she had not thrown her infant into the pig-stye? After protesting for some time against this supposition she confessed at length that she had done as was suggested. But the pig-stye was very carefully cleaned out and neither human remains nor trace of blood were found. After a trial, in which her advocate appealed to the indulgence of the tribunal, she was pronounced guilty, on

her own confession, of the crime of concealment of birth, with the remark appended that it was not established that the child had lived; and she was condemned, on the 6th November, to six months' imprisonment. Adèle Bernard, who in consideration of her spontaneous confessions had been neither arrested nor imprisoned, presented herself at Vic to undergo the punishment to which she had been condemned and it was perceived that she was in a condition of advanced pregnancy. Transferred to the Departmental Hospital at Nancy, she was there delivered, on the 24th December, of a well-formed female child at full term. At that time the ten days allowed for appeal had long elapsed: but the Procureur-General who is allowed two months within which he may interfere, exercised his right in the girl's favor. and she was brought up to Court from the Departmental Hospital on the 18th January, 1869. Being there questioned she declared that her parents and the midwife had beset her to induce her to make confessions; that they never ceased telling her that if she did not tell what had become of her child she would be taken to Vic (in spite of her ill-health) put in prison and condemned to the galleys for 15 or 20 years. Subsequently they told her that she must not retract her declaration. They had terrified her by setting before her the severe punishment which awaited her if she did not confess. The Court quashed the conviction and discharged the prisoner. This case illustrates the fact that judicial confession, which in ancient jurisprudence afforded the highest degree of proof, and which is still in England, so far relied upon as to dispense with an appeal to the jury, is far from supplying absolute certainty. How worthless was the system which, in order to obtain the confession of the guilty, legalized torture for the purpose and declared emphatically that an innocent person would never declare himself guilty contrary to the fact! How much are they mistaken who to render judicial error impossible lay down as a rule that the erroneous condemnation of an innocent person will elicit from him such protestations that their eloquence would be irresistible!—*Jour. Des. Conn. Méd.*

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*Chloral Hydrate in Hydrophobia.**

"There has been a case of Hydrophobia, a grass-cutter of the 1st Cavalry, who was bitten 5 weeks since by a jackall. I notice the case, because the administration of Chloral Hydrate most completely controlled the most distressing symptoms."

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* Extract from Diary of Dep. Inspr. Genl., I. M. D, Nagpore Force, Kamptee, 12th October 1872.

Blue light as an organic stimulant.

At a recent meeting of the Philadelphia Agricultural Society, General Pleasanton read an interesting paper on the effects of sunlight on plants and animals, when transmitted through blue glass. Geraniums which had become unhealthy recovered their vigor and became more deeply coloured when covered with blue glass; and the branches of the same grape-vine showed a remarkable difference in their growth of leaves according as they were or were not covered with blue glass, the leaves on the former having a diameter of six to eight inches, being of a deep-green color and perfectly healthy; while the uncovered branches were only two inches in diameter, and of a pale, sickly yellowish color, indicating a feeble vitality. The paper also mentioned a case of the wife of a Philadelphia physician who had for some time been suffering from a complication of disorders which had baffled the skill of her physicians, and who, on the suggestion of General Pleasanton, tried the following plan: Every other pane of glass in one of the windows of the patient's room was removed and blue glass substituted, and the patient required to expose her back and spine to the action of the combined blue and white lights for thirty minutes each day, at the same hour. At the commencement of treatment she was unable to sleep or eat, was in a miserable condition, and wasting rapidly. At the end of ten days the pains in her back were less, her hair had commenced growing thickly, and there was a marked improvement in her general condition. In three weeks she was almost entirely well.—*The Medical Record.*

Treatment of Goitre.

Th. Sittell, M. D., of Cincinnati (*The Clinic*), recently had a patient with goitre, which measured when first seen $21\frac{1}{4}$ inches in circumference. The treatment was adopted as recommended by Lücke, which consists in the injection into the tumor of the tincture of iodine. Within three months eleven injections were made into its parenchyma—in from 10 to 25 drop doses—which reduced the tumor four and one-fifth inches; and its steady and constant decrease was evidence of the efficacy of treatment, and promised future perfect success. The digital compression after removal of the syringe and the closure of the wound of penetration by adhesive plaster as recommended by Lücke were always observed. The suggestion, too, was adopted of permitting the needle to remain in the tumor while the body of the syringe was withdrawn to be refilled that there might be the least possible danger of injecting the iodine into a minute vein. The almost entire absence of local reaction was probably due to the fact that cold dressings were always applied to the surface after each injection.—*Ib.*

Ether versus *Chloroform.*—By J. MORGAN, M.D., F. R. C. S.

I NOTED this day four patients I etherised. One, a very strong man, where extraction of a cataract* was performed. Insensibility was obtained in ten minutes; the pulse remained steady; there was no sickness of stomach; and the operation was most successfully and happily terminated—just as in a similar case which I etherised a few days previously.

Another vigorous patient, of 17, in four and half minutes sank quietly into insensibility with the most perfect result; pulse from 80 to 86; respirations increased six per minute. I occupied about five minutes in operating; and the patient emerged from insensibility equably and gently—there was no excitement or sickness.

Another, of 24, became influenced in ten minutes, with no excitement beyond bursts of laughter; there was no sickness of stomach. I occupied five minutes in operating; the recovery was most equable.

Another, of 30, became influenced in eight minutes, and fully so in ten minutes, with no excitement or approximation to convulsions, and no sickness. I occupied six minutes in operating.

In the last case I had used chloroform three times previously, and ether once; and in the second last case I had used chloroform five times, and ether once. In both, but in the second last more particularly, the convulsive stage under the use of chloroform was always very severe and protracted.

Ether produced *incomparably* superior results in every way, accompanied by a sense of much greater security. I particularly noted these instances, as I had observed the previous effects of chloroform on the patients.

It is but natural that we should examine with attention the expressed opinions of surgeons as to an agent which has been most used in America, the country which may be allowed to have been the birthplace of the application of anæsthetics in surgical practice. Since the time when Dr. Morton, so long since as 1846, introduced the use of ether as a "pain-destroyer," ether has stood the test for the period which has since elapsed, and ether is still, in that country, the more universally adopted means of obtaining insensibility.

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* By Dr. Jacob.

I find in the last very accurate surgical work which has issued from the press, 1871, the question of Ether *versus* Chloroform is thus reviewed* :—

"Chloroform is more prompt in its effects; the patient is usually quieter while coming under its influence; it is less apt to cause vomiting; a smaller quantity suffices to produce anæsthesia, and the patient reacts more quickly when the inhalation is stopped. It, however, requires greater care in its administration than ether, and its use is attended *with much greater risk to life!* This statement gives my own estimate of the relative merits of these agents, and I believe corresponds pretty closely with the opinions usually entertained on the subject. It is right, however, to state that Dr. Lente and Dr. Squibb, of New York, believe that anæsthesia may be induced by means of ether, as quickly as can safely be done by means of chloroform, and with a quantity costing less and weighing very little more than the requisite amount of the latter; and other writers have maintained that vomiting is, at least, as frequently caused by chloroform as by ether."

In support of the latter observation, I myself refer to the cases I have just witnessed, and that in the last thirty patients I etherised, within ten days sickness of stomach occurred but in two, and in these instances, some food had been taken one hour and a half before operation.

"For my own part," says Dr. Asshurst, "I confess *I prefer ether* in a very large majority of cases; it is certainly, I think, *safer* than chloroform, and is sufficiently convenient for almost every case that the surgeon is called upon to treat. There is *no danger*, as in the case of chloroform, of the vapour being too concentrated; indeed, some surgeons, as Dr. Lente, endeavour to prevent even the slightest admixture of air."†

We have thus reported, by the most recent authority, the value of the arguments for either chloroform or ether, "*safety to life*" and the avoidance of those very unpleasant accidents, "deaths by chloroform," presenting the strongest claims in favour of Etherisation, and justifying the candid remark of Mr. Erichsen,‡ of London, when he states,—"The fatal consequences which have attended the employment of chloroform, have caused American surgeons almost entirely to trust to ether in preference. Ether is certainly a *safer* agent than chloroform, but few deaths having resulted from its administration; and the only argument

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* "Principles and Practice of Surgery." By J. Asshurst, p. 75.
† *Ibid*, pp. 75-77
‡ "Science and Art of Surgery," p 17. London, 1869.

in favour of the use of chloroform rather than ether is, that chloroform is the most *convenient* agent! its effects being produced more quickly, and no disagreeable smell being left, as in the case of ether." Fortified with such an opinion from so eminent an authority as Mr. Erichsen, M. Diday would be well supported in passing the condemnatory resolution I have already referred to, "that any surgeon using chloroform instead of ether as an anæsthetic would be culpable."

Surely, it would be a small solace to a husband for the death of a wife, or to a wife for that of a husband, to be told that chloroform, which caused the loss of what was held most dear, was used, simply because, while it was far more dangerous, "it was more convenient." Indeed, in a case of death by chloroform, it appears to me that legal if not moral culpability might be strenuously urged against the administrator, for using an agent admittedly *more dangerous* than another, simply on the ground as stated, and "the only argument" in its favour, that it was "*more convenient.*" The question is thus becoming daily more serious and debatable.

The late American War furnished enormous opportunities of testing the merits of ether. In one of the most recent and critical treatises on Military Surgery,* the preference is given to ether, supported amongst other arguments by the fact that, taking the reports of the General Hospital (Mass.), for ten years, 1850 to 1860, where ether was exclusively used, "notwithstanding the greater severity of the cases (mostly railroad and street accidents)and the more crowded condition of the hospitals, the average mortality was substantially the same as *before* its introduction. This testimony demonstrates the *superiority of ether* as compared with chloroform." "Ether, ought generally to be preferred to chloroform as being less liable to destroy life immediately."

Few more cogent arguments could be collected than this ten years' epitome of the successful result of ether, when it is remembered that these cases did not even occur in military practice, where healthy and active soldiers were the unfortunate sufferers, but in a general hospital, where cases of all varieties, and in diverse circumstances of life, were encountered. It may also be admitted that operations were undertaken with the assistance of etherisation, which, previous to its introduction, would have been unattempted; yet, while pain was absolved by this "comparatively, though not absolutely, innocuous agent," as styled by Prof. Hamilton, the statistics prove that it in no way contributed to an increased mortality rate.

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* Dr. Hamilton, Professor of Military Surgery, Bellevue Hospital, New York, p. 621.

On inquiring as to the recent practice in the large American institutions, I find in the excellent and compendious Reports of the Boston City Hospital, 1870—including 1,113 operations on in-patients, and 1,062 on out-patients—that amongst all those reported, with such critical procedures as excision of the upper jaw, œsophagotomy, ligature of large arteries, including that of the arteria innominata, excision of the hip-joint, amputations, &c. ether alone was invariably used, and no ill-consequence or apprehension has been noticed.

In Bellevue Hospital, New York, with something like 1,800 beds, chloroform has never been used for the last four years, with the many hundreds of operations necessarily constantly performed there. In the Charity Hospital, Blackwell's Island, New York, where etherisation alone is used constantly, not hundreds, but thousands of cases have been submitted to its influence without one *contretemps*. This I have the authority of the Resident Officer for stating, as he himself administered the ether to a very large number of these patients*; while, on the other hand, in the cases in which he saw chloroform used, namely, two cases of hernia, one of hare-lip, and one for repair of a bitten-off nose, there was always much reason for apprehension, and he witnessed the death of one of the patients from the effect of the chloroform, which was being given where an operation, though painful, but no way involving life (the formation of a nose), was about being performed; it was never commenced, as the patient, a strong healthy looking woman of 35, died on the table, notwithstanding all the means anxiously and actively used for re-animation.

Dr. Mott is said to have preferred chloroform to ether.† Evidently, however, Dr. Mott failed to leave the impress of his preference behind him, as in neither of these Institutions—to both of which he was attached—has anything but ether ever been used since his death. I have obtained the summary of one very remarkable case of a large aneurism of the thoracic aorta, treated by galvano-puncture, at Bethove Charity Hospital, where ether was used on several occasions without any ill consequences, and with a feeling of perfect safety where chloroform would have been inadmissible. It is so remarkable that I append it in illustration.

Bridget Dillon, aged 57, an Irish woman, and comparatively strong; suffering from a large thoracic aneurism: submitted to the attempt of obtaining occlusion by the galvano-puncture; she was etherised, and came under its influence in about eight minutes; needles were introduced through the chest into the tumour, and connected with a current of seventeen cells. There

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* Dr. Godon.

† Hamilton's "Military Surgery," p. 612.

was no pain or ill consequence whatever. On one occasion the use of the needle was tried *without* ether; but the pain was excruciating beyond endurance.

The whole question of the comparative use of the various anæsthetics has been lately very fully reviewed by Dr. W. Coles, who read an elaborate paper replete with overwhelming evidence, at the Medical Society of Virginia, this last session. The arguments in favour of Ether *versus* Chloroform are unanswerable when the great question of *danger to life* is considered. By com-combining the American statistics, collected by Dr. Andrews, of Chicago, and those of England, by Dr. Richardson, of London, we obtain the following general view of the absolute and relative mortality caused by the several anæsthetic agents in use:—

	Deaths.		Inhalations.		
Ether ...	4	to	92,815 ...	or 1 to	23,204
Chloroform ...	53	„	152,260 ...	„	2,873
Mixture of Chloroform and Ether ...	2	„	11,176 ...	„	5,588
Bichloride of Methylene ...	2	„	10,000 ...	„	5,000

These figures the author regards as the most valuable and reliable that have ever been published in reference to the *mortality* in anæsthesia. They demonstrate a state of facts so absolutely at variance with the received opinions of five years ago, as *to become perfectly startling.* They indicate that chloroform is *eight times more dangerous than ether, twice as dangerons as a mixture of chloroform and ether,* and as far as experience goes, it is *more dangerous than bichloride of methylene.*

In view of these facts the question arises—Will chloroform maintain its present popularity as an anæsthetic in surgery? We do not believe it will; unless some method, other than we have at present, is devised to lessen the risk dependent on its use, we cannot but think its popularity must decline. In the face of such figures as adduced, *chloroform cannot, and ought not, to supersede ether.* The inconveniences attending the use of ether are more than compensated for in the risks from chloroform.*

Nothing can put the question in a plainer light. One death from ether in 23,204 cases reduces the risk to a nominal amount.

It is to be recollected that in etherisation there is not the constant and harassing danger ever present; the surgeon is freed from the anxiety that more or less accompanies him into the operating chamber, and his attention can be altogether devoted to the operative procedure in which he is immediately engaged, not, as is too frequently the case, distracted by inquiries as to the condition of the patient, and the influence which the chloro-

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* Hay's *American Journal,* April 1872, p. 488.

form is exciting. Friends who are intensely interested, are relieved from an additional cause of anxiety which the occasional notice of "Death by Chloroform" may have impressed them with, while equal, if not greater, security of the avoidance of pain is secured, with *eight times less danger.* Facts such as these cannot fail "to become perfectly startling," and deeply to impress a patient about precipitating himself into the mysterious sleep of insensibility.

With such convincing statistics from the mother country of anæsthetics, where Ether is used, and from Great Britain, where Chloroform was introduced and is used,—with the opinion expressed in the latest standard work* from the former country of unalterable faith in the use of ether,—with the opinion, also, of the author of a standard work† in Great Britain, where, though chloroform is the more largely used, its danger is admitted, and the only argument adduced in its favour is that of convenience; in the face of the discussion at present being agitated on the Continent‡, and with the occasional reports which crop up of deaths from chloroform, the dangers of chloroform, and the hair-breadth escapes from chloroform, it is evident that its popularity must wane when calmly contrasted with ether as an anæsthetic agent.

The surgeon who makes use of chloroform will employ an agent not only *eight times more dangerous* than ether, but actually the *most* dangerous of the other agents in use.

Should he not have put these issues before the patient, and should any casualty occur, his responsibility may be indeed seriously brought into question.

The critical examination into the comparative merits of Ether and Chloroform which I have already referred to, as conducted by the Committee of Investigation appointed by the Royal Medical Chirurgical Society of London, resulted in important observations.

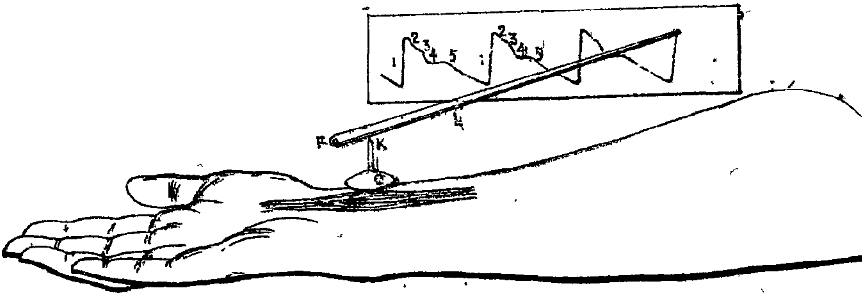
The inquiry was aided by the use of the hemadynamometer in testing the effect of the heart's action and of the influence of these agents upon it. The report states—"The essential difference between the action of Chloroform and of Ether is to be found in the effect produced upon the heart. The first operation of both agents is to stimulate the heart and augment the force of its contractions; but, after this, Chloroform *depresses* the heart's action, whereas Ether appears to exert but little influence upon the muscular movements of that organ." The general accuracy of this remark, though tested by so comparatively coarse an

* Asshurst.
† Erichsen.
‡ Société de Médecine.

instrument, is borne out by observation of the pulse-writing as indicated by the sphygmograph, an instrument of far greater delicacy which has been since introduced into practice; it affords direct instruction in comparing the influence of etherization on the pulse, with the healthy condition, by the evidence of the writing.

The accompanying outline of the principle of the sphygmograph will serve to explain briefly its mode of action as writing from the natural soft pulse:—

FIG. 1.



a. The pulse, showing the artery in the act of pulsation.

c. k. The lever, which communicates its pulsations by being laid on the wrist.

f. l. The index, or pen, which marks the pulsations on a slip of paper, or glass, which receives the writing by being worked along by a rack and spring.

On examining a pulse writing, the component motions may be thus analysed—

Vis a tergo {
1. The First Ascent. Due to the jerk, by the propelling heart.
2. The Indentation. Due to the elastic re-action of the blood-vessel itself.
3. The Elevation. Due to the continued force of the heart's contraction, sending on the blood fluid.
}
4. The Break. Due to the sudden stopping off of the heart's action by the valves shutting.
5. The Second Elevation. Due to the action of the blood-vessel itself.

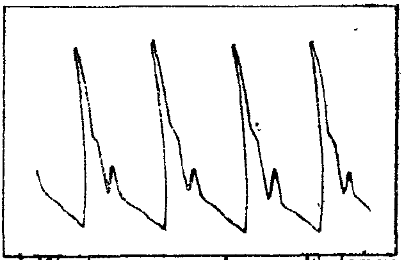
It has already been shown by the Chloroform Committee above quoted, that ether exercises a stimulating effect on the heart's action, instead of the depressing and sometimes fatal one of chloroform. It therefore follows that sphygmographic delineations, or pulse writings, should give some aid, as typifying the immediate effect of etherization on the heart itself. If the general influence of the "vis a tergo" due to the immediate propulsion of the blood from the heart be understood, in causing the ascent

of the pulse-writing, with its succeeding fulness or distension, such evidence will be interesting, as showing the condition and vigor of the heart's action during the sleep of etherization.

In order to simplify the general conclusions as to the value of the indications, I add a bird's-eye view of some of the modifications of pulse-writings in various diseased conditions—more particularly with regard to the indications due to the "*vis a tergo*," or immediate influence of the heart.

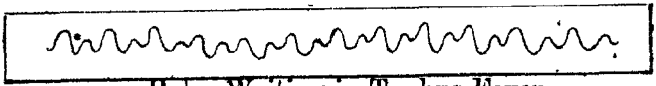
Typical pulse-writings of opposite characters will be instructive. Thus—taking an example of enlargement of the heart (Fig. 2.) The high elevation of the pulse-writing is remarkable, compared with the undulatory score of typhus fever (Fig. 3.) or again with the feeble indications of the flickering heart of a patient worn out by consumption, given during the last hour of life (Fig. 4).

FIG. 2.



Pulse-Writing given by an Enlarged Heart.

FIG 3.



Pulse-Writing in Typhus Fever.

FIG 4.

The feeble Pulse-Writing of an Expiring Heart.

If these be compared with the copy of a writing given by the "Natural soft pulse after exercise and residence in the country," as shown in Fig. 1, the relative conditions and indications may be estimated.

The following specimens of pulse-writing, taken both previous to, and during etherization, prove that the effect on the heart was that already mentioned by the Chloroform Committee in 1864—

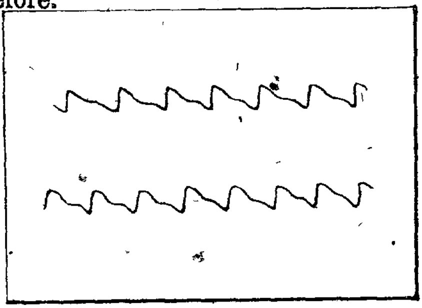
"That ether was a stimulant to its action."

Fig. 5 represents the pulse of a female patient, aged 25, who had been confined to bed for five months; pulse-writing taken before Etherization,

Fig. 6 represents it during the full influence. It will be seen that the heart power indication was rather stronger during etherization than before.

Fig 5

Fig 6



I selected another instance of a female, aged 17, also long confined in bed. The contrast of Fig. No. 7 taken before etherization, and of Fig. No. 8, during profound etherization, is notable; the elevation of the pulse-line showing the stimulating property of the ethereal influence.

Fig. 7.

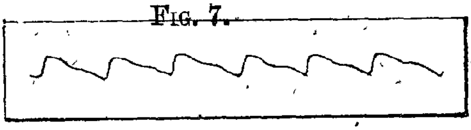


Fig. 8.

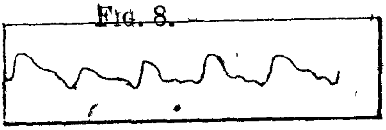


Fig. 9 represents the excited pulse-writing of a small and nervous female patient, previous to etherization and operation.

Fig. 9.

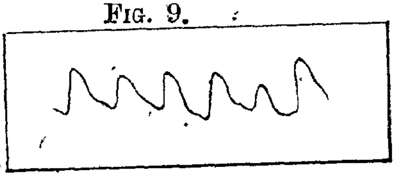


Fig. 10 represents the pulse-writing of the same patient, when steadied by etherization. The contrast is remarkably favourable.

FIG. 10.

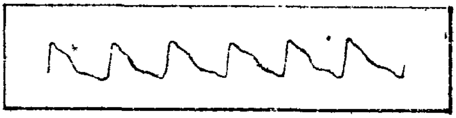


Fig. 11 represents the pulse-writing of a healthy young man of 22, previous to operation for artificial pupil—an affection which had not interfered with his general health.

FIG. 11.

Fig 12 represents the same, when taken under full etherization and after the completion of the operation. A comparison of this pulse-writing with that of Fig. 1. will be ample evidence of the safety of etherization in its action on the heart.

FIG. 12.

I have taken all but one of these examples as the most unpropitious, occurring in patients of diminished health and vitality; yet it is evident that the most perfect anæsthesia could be invoked under the influence of ether, with an absolute stimulating effect on the circulation, and that the condition of insensibility could be maintained for a considerable time, yet there was no material alteration of the "pulse-writing," and the most perfect sense of security was established.

It is therefore established that—

While chloroform exerts a depressing influence on the heart, ether exerts a stimulating one;

And that chloroform is the most dangerous, while ether is immeasurably the safest of all anæsthetics,

On the opposite side it has been stated that

The only argument in favour of the use of choloroform is that of its being convenient (*a*).

However, on the other hand the only objections which have been put forward by the Committee as bearing against the use of ether were the comparatively insignificant ones of "disagree-

(*a*) Erichsen.

able odour," that it was "slower" and gave rise "to greater excitement than chloroform." The odour of chloroform, it is to be admitted, is sweeter and perhaps the most agreeable. Few people, however, dislike the odour of ether, and whatever objection there may be to the flavour, its exhilarating effects are such that many have found it a seductive substitute for alcoholic stimulants, even to the extent of producing intoxication. In Ireland, curiously, its virtues, if they may be so styled in this way, have been already appreciated, and as that province, whose inhabitants are peculiarly accredited with astuteness, has been the most noted for its consumption, we may conclude that it presents, despite its supposed disagreeable odour, the recommendation of being "good value" in producing the desired effects; indeed, the intoxicating and stimulating quality of ether has been known for a considerable time, and a *soupçon* of its use amongst the better classes of society has more or less existed. Mr. Draper (*a*), however, has lately put the question of the "*Use of Ether as an Intoxicant*" in so clear a light that it has attracted considerable attention. He states:—

"The floating idea that there are fair consumers of *Hoffmann's anodyne* and *perles d'ether*, for whom ether has never been prescribed, quite prepares one for the discovery that there is in the northern part of Ireland a number of people who, forswearing alcohol, supply its place with ether—a race to whom ether is what koumiss is to a Kalmuck, ava to a South Sea Islander, absinthe to a certain class of Frenchmen, or gin and whiskey to their more immediate neighbours. That they should take 'nips' of ether morning, noon, and night, as they would whiskey, and—for anything shown to the contrary—drink good luck or ratify bargains in a glass of ether, was not a thing to look for, and is, perhaps, without parallel in the history of narcotic stimulants. The facts rest upon the authority of a number of gentlemen, in their respective capacities of physicians, clergymen, ether-manufacturers, and druggists."

Its Mode of Use.

"The usual quantity of ether taken at one time is from two to four drachms, and this dose is repeated twice, thrice, or even four and six times daily. It is taken unmixed with water; indeed, its very slight solubility in that fluid would make this a useless precaution; but the usual practice is, to take first a mouthful of water, then the dose of ether, and again a mouthful of water."

Its effect.

"The intoxication produced by ether resembles that of alcohol, but is much more rapidly produced, and is more evanescent. The

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(*a*) Mr. Draper in the *Medical Press and Circular.*

ether seems to be eliminated entirely by the lungs, and the breath of the ether-drinker always affords ample evidence of his addiction to the habit. I am credibly informed that at the fair of Draperstown—which appears to be the paradise of ether-drinkers—the prevalent smell is not, as at country fairs, of pigs, tobacco-smoke, or of unwashed human beings, but of *ether*."

Its Influence on the Health.

"I have not been able to learn that, apart from the moral ill effects common to all excitants and intoxicants, the habitual use of ether brings in its train any peculiar evils, and although it would be wrong to draw a conclusion from completely negative evidence, I am disposed to believe that the votaries of ether incur less danger from the habit than ordinary dram-drinkers; and there are two good reasons for this belief. If we assume that there is nothing specifically injurious in the action of ether, it will rapidly be admitted that, having a definite chemical composition, and not being very liable to adulteration with other fluids it must be an improvement upon the sophisticated alcoholic potations, which, with these people, it has replaced. Again, the affinity of ether for water is so slight (*a*) that dehydration of the mucous tissue of the alimentary canal, and that apeptic action which so well mark the difference between the effect of ardent spirits and of alcohol in the form of unbrandied wine, cannot be evils attending its use.

"All the ether consumed in this way is that which is technically termed 'methylated,' that is, prepared from methylated spirit."

The Quantity Consumed.

"Now, if we assume the ordinary quantity taken at one time to average three drachms, and this quantity to be (in stimulant effect) the equivalent of half a glass of whiskey, we arrive at the result that three gallons of ether supply the place of 10 gallons of whiskey. It is very difficult to arrive at any accurate idea of the extent to which ether is consumed in the north of Ireland. Omagh is said to take about 400 Winchester quarts (equal to 250 gallons) yearly, and one Dublin manufacturer has sent to Belfast at the rate of 4,000 gallons yearly."

The consumption of ether in repeated doses appears, therefore, to have had no specially prejudicial effect on the health; while it acts as as intoxicant more rapidly than spirits, it is more evanescent. We may conclude from the experience of the ether-drinkers of the north of Ireland that the vapour may be freely used, and the anæsthetic influence unhesitatingly invoked without having any permanent or deleterious effect, although the system may have been as it were saturated, as it doubtless, is by

(*a*) 1,000 volumes of ether dissolves but 10 volumes of water.

the ether tippler who imbibes his two or three teaspoonfuls perhaps six times in one day—an amount more than sufficient to exercise full insensibility by the mere inhalation of its vapour.

It has been stated that etherization is more tedious than chloroform in its action. I find this by no means the case. When the time occupied in gradually bringing a patient under the influence of chloroform, and in proportioning the amount of the chloroform inhalation to the varying conditions of the pulse and system, are both taken into account, I do not think there will be found much, if any difference in time, when the aggregate of cases is taken; but even if an additional few minutes were consumed (which I do not admit) the *safety* of etherization will amply counterbalance any inconvenience on that score.

It is to be remembered, that with regard to this question of time, there is a diversity of opinion, and as I have already mentioned, practitioners of eminence and experience (*a*) assert, that, "anæsthesia may be induced by means of ether as quickly as can safely be done by means of chloroform." Much evidently would depend on the mode of administration; the aid given by the patient, and the purity of the ether. I have seen instances where these conditions were attended to, and where etherization was more rapidly induced, even in *half* the time which had been occupied in the administration of chloroform on previous occasions, to the same patients.

The solution of the question of time, appears to be in a great measure dependent on the amount of ether vapour which is taken by the patient. In the directions given for etherization it is stated, that some use the sponge or the cone of paper, and it is remarked "that enough air gains admission through the interstices of the (*b*) sponge moistened with ether held over the mouth and nose;" while others arrange the apparatus so as to prevent "the slightest admixture of air" (*c*) as does Professor Porta, of Pavia, "who stops the nostrils and uses a bladder closely fitted to the mouth" (*c*).

Dr. Smith, of New York, uses a large india-rubber ball, with an aperture cut for the face. The ball is lined with lint, which receives the ether.

Dr. Lente uses a cone of paper, with a towel pinned inside, and so folded as to prevent any, "even the slightest admixture of air."

While, therefore, we find it stated that "the admission of air is comparatively of little consequence," that "enough air enters through the interstices of the sponge," and, again, that it is endeavoured "to prevent any, even the slightest admixture of

(*a*) Dr. Lente, Dr. Squibb, Dr Godon.
(*b*) Dr. Lente
(*c*) Asshurst, p. 77.

air," evidently there is abundant proof of the *safety* of ether, and of the efficiency of its action. Some of the objections which have been urged against its use, of causing delay, sickness of stomach, headache, or spasm, are dependent on this very diversity of application, as it is found by those surgeons who exclude air that the results are satisfactory in the extreme.

We have here the key of the question. Ether vapour being considerably heavier than air, when applied by the sponge would flow away unseen from the mouth and nose, and much of it thus escape inhalation, while from being concentrated, and more efficiently applied by the other modes last described, it would act more satisfactorily and produce anæsthesia "as quickly as can safely be done by means of chloroform." (*b*).

(*To be Continued.*)

MEDICAL INTELLIGENCE.

(General Orders by the Governor in Council.)

28th September 1872.

No. 236 of 1872.—The following extract from a Military despatch from the Right Honorable the Secretary of State for India, is published :—

Para. 1. The following candidates having completed the course of instruction at the Army Medical School, and having been reported qualified, have been appointed Assistant Surgeons on the Madras Establishment, their commissions as such bearing date 30th March 1872, viz. :—

Arthur Mudge Branfoot.
Christopher John McNally, M.D.
William John Butler.
William Edward Johnson, M.D.
Thomas Vaughan Aylen.
Stanley Locker Dobie.
George Frederick Bevan.
Christopher Lloyd, M.D.
Andrew Francis Dobson, M.B.
Charles Little, M.D.
Thomas Mayne.
John Crofton Lawrenson.

2. If accommodation be available, they will be provided with passages on board one of Her Majesty's troop ships.

3. They will be allowed to count as service for full-pay pension the period of their residence at Netley, from the 30th March 1872 to the 3rd August inclusive.

(General Orders by the Commander-in-Chief.)

Canteens.

27th September 1872.

The following General Orders by His Excellency the Commander-in-Chief in India, is republished :—

His Excellency the Commander-in-Chief is pleased to lay down the following rules for the Canteens of Convalescent Depots, as an experimental measure, in substitution of those published in General Orders* Nos. 42 and 220 of 1871 :—

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* Madras G. O. C. C. 26th June 1871, page 185, and 9th December 1871 page 367.

I. Until further orders, the issue of spirits in Convalescent Depot Canteens is prohibited, so soon as the supply now in store is exhausted.

II. The amount of malt liquor to be allowed to a convalescent will in future be determined by the Medical Officer in charge.

III. A report from the Senior Medical Officer on the result of this change will be submitted to Army Head Quarters, by the Commandant of each Depot, at the end of the present year.

Hospital Furniture.

No. 1002 of 1872.—Addendum.—In the scale of hospital equipment for European regimental hospitals, published in G. G. O. No. 830* of 22nd September 1871, under the head of "Hospital Furniture," after "Chisel" add *Clocks, American—one for each regimental hospital.*

Order Books to be corrected accordingly.

Furlough Rules—Warrant Officers.

No. 84.

2nd October 1872.

The Commander-in-Chief requests the attention of Heads of Corps and Departments to which Warrant Officers are attached to para. 2 of G. G. O., No. 888, dated 23rd August 1872, re-published in G. O. G., No. 212, dated 31st August 1872, page 164, which requires Warrant Officers to elect the Furlough Rules they desire to abide by, and His Excellency directs that all applications for leave for Warrant Officers holding that rank on this date shall be supported by a statement showing the Furlough Rules they have elected.

Leave—Passages.

No. 182.

11th October 1872.

Under instructions from Government, the Commander-in-Chief is pleased to notify that officers returning to India from leave to Europe, who take their passages by private steamers, or steamers not under contract to Government, do so at their own risk in respect to forfeiture of pay, service, or appointment, should they fail to arrive on or before the expiration of their furlough.

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* Madras G. O. G, No. 241, dated 6th October 1871.

Railways—Passage—Transport.

No. 195.

With reference to the General Orders cited in the margin, it is notified for general information that *a return passage* by railway is authorized for all native commissioned and non-commissioned officers, soldiers and native doctors, who may have proceeded to their homes on leave on medical certificate.

G. O. 136 of 1868, Madras G. O. G. 24th April 1868.

G. O. 286 of 1868, Vide G. O. G. 22nd September 1868.

2. Para. 168, Transport Regulations, Part II., will accordingly read as follows :—

"The indulgence of a free conveyance, with return passage, is allowed to all native commissioned officers and soldiers of the native army, as well as to native doctors attached to corps, when travelling from station to station by railway on medical certificate, whether in the presidency to which they may belong or beyond its limits: a free passage by rail is also allowed to any of the above grades who may be invalided or discharged with gratuity as physically unfit for further service, when such mode of conveyance is available on their homeward routes."

MADRAS MEDICAL FUND.

Retirement.

Surgeon Major H. T. W. Harper, from 8th August 1872.

FORT ST. GEORGE,
1st November, 1872.

List of Children.

On account of whom Payments have been notified by the receipt of Paymaster's Statements, &c., from 1st October up to this date for securing the following rates of pension.

Names of Subscribers.	Children's date of birth.	Sex.	Rates of Pension secured.	To what period.	Payments how made.
E. E. Lloyd ...	29th August 1872.	Male ...	Full ...	To 18 years ...	By Donation.
T. Lowe ...	14th Sept. 1872 ...	Male ...	Full ...	To 18 years ...	By Donation and Subscription.

MEDICAL FUND OFFICE,
FORT ST. GEORGE,
31*st October* 1872.

CORRESPONDENCE.

A NEW MEDICAL FUND.

To the Editor of the Madras Medical Journal.

SIR,—Will you kindly find a place for the following in your next issue.

In your last month's number I read with a great deal of interest, a very good letter from "Junior." Any one who has read the same, will, I am sure, agree with me, that we have remained quiet too long, and that it is high time, as he shows us, that we should be "up and doing." What is to be done will have to be done by ourselves, and if our endeavours have a successful issue, we shall be able to claim the credit. When I think of the time that has been wasted, of the six years that have been allowed to pass away without our making a struggle, I feel that we have been guilty of a great want of energy, and have thereby renderde what we want more difficult to get. But better late than never. With "Junior's" letter before us as a stimulus, let us at once ask for that which ought to have been given us as our right. What we want is a fund, and why we have not one, is a question that must be answered by the powers that be. We may rest assured that the way to get a fund is not to sit down quietly and wait until one comes, but to commence at once and see what we can do for ourselves. Some time since there was a talk of a combined fund for the Staff Corps, Medical and Clerical professions; it was talked of, and written about, but there the matter ended. Probably it is under consideration now, but we all know that subjects like these are eggs which require a very long incubation before they produce anything; so that after the stereotyped delay, usual in these cases, of three or four years, there is just a bare possibility of our hearing something about it; and even then, perhaps, nothing very much to our advantage. There is one point, that we must bear in mind, and that is, we must work collectively and not individually. Our present Inspector-General we all know is ready and willing to help us; so that if we unite together with one spirit, work with one end, and ask our right with one voice, we cannot fail to obtain what would be the greatest boon to our service.

ANOTHER JUNIOR.

Water Analysis.

To the Editor of the Madras Medical Journal.

Sir,—When I first took upon myself to make a stand against the sensational hygienic chemistry which threatens to overwhelm sanitary science in India, I was fully aware that such a course would bring down on me no small amount of opposition, even of obloquy. Every one who attacks an abuse must expect vigorous resistance not unmixed with indignation. I am not, therefore, surprised to find myself charged with doing my best to injure the professional reputation of a brother medical officer. I need hardly say that such is not the fact. Nothing has ever been said by me impugning the professional reputation of Dr. Macnamara; but when he steps out of his profession to compile bad chemical schemes, I do not hesitate to speak in defence of chemistry either at home or in India.

But I own to some surprise when I find Dr. Macnamara slips out of the position he took in the following sentences of his reply. " I, for my part, am quite content that the scheme, or Mr. Nicholson's critique, should stand or fall by the truth, or otherwise, of the particular statement which he pronounces 'a gross inaccuracy,' and I shall proceed to show that this statement is in fact quite correct * * * * But if the alkaline sulphates are present in only small amount, this conversion may be more conveniently brought about by the addition of chloride of ammonium to the solution, for on evaporation and subsequent ignition, the ammonium carries off the sulphuric acid, leaving the chlorine in combination as chloride of sodium or of potassium. But Mr. Nicholson utterly denies this statement. He pours scorn upon it, and states that any one can convince himself by a simple experiment that it is an erroneous one."

In my *rejoinder* I showed that the statement was "a gross inaccuracy," for in the residue from which all the sulphuric acid should have been expelled, this constituent can actually be determined more accurately than in the original water. I gave experiments on a water and on pure salts. but Dr. Macnamara slips out of his position on the pretext of a slight correction which I made in my comment, in order that it should be perfectly accurate, the correction having no bearing on the general tenor of my objection. I protest against this evasion of the penalty to which Dr. Macnamara

offered to submit in case his statement was found to be otherwise than the truth.

I will now briefly notice a few statements made in Dr. Macnamara's letter.

1*st*—" And in the first place I can assure him that I have not been unmindful of marine impregnation as a source of impurity in the fort waters—this he will see if he will refer to my reports on the tanks on the glacis in which I have distinctly recognized the liability to such impregnation."

I have most carefully examined the reports, yet the only trace I can find of such recognition is in the case of a tank at Barrackpore (not at Fort William). " It is possible that this tank may communicate through the soil with the river." But I was speaking, not of more or less direct admixture of tidal water, but of brackishness derived from marine deposits in the soil. All through Dr. Macnamara's reports there is not the slightest recognition of the fact that large tracts of land, even hundreds of miles from the sea, contain deposits of marine salts and impregnate the subsoil water with them. This saline impurity when obvious is invariably ascribed by Dr. Macnamara to the innate depravity of the native character (his *locum tenens* elegantly remarks of Allyghur water, nearly identical with that of the Seven Wells, drunk for years by the troops in Fort St. George, " the curse of Rabshakeh has fallen on the consumers of this water").

2*nd.*—Dr. Macnamara then proceeds to say that I have deliberately misrepresented him by saying that he condemns every Indian water that happens to have nitric acid in it, and he gives what are, apparently, good proofs of my statement being too sweeping. A little attention will, however, show that the quotations, far from being Dr. Macnamara's own opinions, are compilations of the analyst's opinions, and that the exceptions only happen when, an analyst having proved that nitrates exist normally in the soil, Dr. Macnamara has been unable to avoid passing as good, waters which he would, I maintain, have certainly condemned if he could have done so without offending the analyst. For instance, at Nowgong the European Infantry wells escape owing to the analyst's representation that nitrates are normal to the soil of the cantonment, but the Native Infantry wells are made the scapegoats and are condemned ; " the analysis undoubtedly indicates sewage pollution." The only difference between the water of the E. I. wells and that of the N. I. wells being that the latter contained a little more sodium chloride

whilst in both cases the amounts of organic matter and of nitric acid and the general composition were nearly identical.

Again, at Jubbulpore, well No. 118, Dr. Macnamara takes credit for praising a water as very good although it contained nitric acid. Now this well is thus remarked on by the analyst: "it contains very drinkable soft water," and the analysis shows that the mineral solids amount to only 5·5 grs. per gallon, of which 4·54 grs. are accounted for without reckoning nitrates or sulphates; I can fully imagine that Dr. Macnamara could hardly avoid perceiving that there was not much room left for nitric acid, and that it would be too ridiculous to condemn a well water which is, with one single exception, the purest in all Bengal. In all the cases brought forwardby Dr. Macnamara, I fail to find one in which he has, of his own movement, passed as good a water containing nitric acid in any quantity above that vaguely known as 'traces;' his opinion is that "nitric acid has been well called fossil organic matter, but it is a fossil which may be of very recent formation." I adhere to all I have said, and deny having misrepresented Dr. Macnamara in any way.

I am, &c.,

EDWARD NICHOLSON.

CUTTACK,
19*th October* 1872.

TO CORRESPONDENTS.

Surgeon W. STEWART, 2-21st Fusiliers.—*In our next.*
Assistant Surgeon L. C. NANNEY. „
The Inspector General I. M. D.—*Received with thanks.*

BOOKS, &c., RECEIVED.

The Doctor, *September* 1*st.*
Medical Record, *August* 15*th*, *September* 1*st.*
Medical Press and Circular, *September* 11*th*, 18*th*, 25*th.*
Journal des Connaissances Médicales, *September* 15*th.*

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